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Fundamentální analýza akcií společnosti TalkTalk Telecom Group PLC

Fundamental Stock Analysis of TalkTalk Telecom Group PLC

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1. Introduction
2. Characteristics and Background of Fundamental Analysis
3. Global and Industry Analysis
4. Company Analysis and Stock Valuation
5. Conclusion

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List of Abbreviations
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"Prohlašuji, že jsem celou práci, včetně všech příloh, vypracovala samostatně. Přílohy A, B, C a D, dané mi k dispozici, jsem samostatně doplnila."

V Ostravě dne 25. dubna 2014 ……

Bc. Monika Orlíková

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Contents

1 Introduction

People invest to make money. Although everyone would like to profit on it, sometimes it is not easy to find the right moment to buy or sell the stocks. Fundamental analysis is a complex tool helping in making investors decisions. It provides a wide view on company's situation and the future.

It is expected every share has its own "intrinsic" value where the market price should move around. The main objective the thesis is to find this value and compare it with an actual market price. The result of the analysis is an investment recommendation which is hold, sell or buy.

In this thesis will be performed a fundamental stock analysis of TalkTalk Telecom Group PLC using fundamental methods and models. Whole work is divided into five main chapters where first chapter is an introducing, and the fifth chapter is conclusion.

In the second chapter the characteristics and background of fundamental analysis will be theoretically described. The forms of efficient market, where the wrong pricing assets may exist, will be also mentioned. Fundamental analysis is composed of global analysis, industry analysis and company analysis.

Third chapter will be dedicated to global and industry analysis. Identification, examination and scoring of influences of the whole economics will be presented within global analysis. Industry analysis will be focused on the key factors of company to understand a company's business and it's environmental.

Company analysis and stock valuation will be in the fourth chapter. First, will be the company introduced, and than the financial health of the company will be analyse. Stock valuation will be estimated using the fundamental models like dividend discount model, multiple models, and additional models that are balance and historical.

Individual models will be subsequently compared with the current share price. Investment recommendation will be based on the final calculation of intrinsic value as well as global or industry analysis.

2 Characteristics and background of fundamental analysis

Fundamental analysis is a method of examination of publicly available information and the formulation of forecasts to estimate the intrinsic value of assets. In a present time it has became a very famous instrument in stock markets, it expresses extensive view of external influences like economical, political, regulators, social and many more as well as internal influences of a company.

Investors buy, hold and sell financial assets to earn returns on them. Within the spectrum of financial assets, is sensitive to set or determinate which asset is undervalued or overvalued. The goal of fundamental analysis is this investment recommendation.

Comparison of an intrinsic value of an asset and a share price (current market price) of the security:

- the intrinsic value is lower that the current market price, an asset is overvalued,
- the intrinsic value is higher than the current market price, an asset is undervalued,
- the intrinsic value equals current market price, an asset is correctly valued.

The possibility that the shares are undervalued or overvalued can occur only on an ineffective market. The efficiency of a market is affected by the number of market participants and depth of analyst coverage, information availability and limits to trading. According *Adams (1995)* there are three forms of efficient market.

Weak form efficiency – a market is efficient if share prices fully reflect all information contained in the past share prices. This implies that the study of the past share prices cannot be used to predict future share price movements. (Directly challenges the usefulness of technical analysis).

Semi-strong form efficiency – a market is efficient if share prices fully respect all publicly available information. This means that share prices adjust instantaneously and without bias to newly published information. If there is any under or over - reaction to an announcement, it is randomly distributed. It is therefore not possible to trade profitably on information gained from public sources. (Semi - strong form efficiency implies weak form efficiency because all publicly available information includes all information contained in the past share prices).

Strong form efficiency – a market is efficient if share prices fully reflect all knowable information (including that which is not publicly available). This implies that it is not possible

to achieve superior investment performance other than by chance. Empirical research has tended to confirm that the UK domestic equity market is not strong form efficient.

According of examined factors the fundamental analysis can be performed by three levels

- global analysis,
- industry analysis,
- company's analysis.

These parts of fundamental analysis are more described in following chapters. The complex view on individual company and its environment is one of the advantages of fundamental analysis in comparing with technical or psychological analysis.

Technical Analysis is another useful and valid method but with different approach. Technical analysis uses price and volume data for making a decision. Technical analysis is based on published historical market data, which is often graphically displayed. Technical analysis is good for short term move. Technicians are interested not in price levels but in price changes. Prices can be projected with charts and other technical tools.

Psychological Analysis is based on psychological reactions of investors. There are no examines of intrinsic value of share or volume of market. Investors are affected by subjective perception of events. The most of the investors are subjects of crowd. Psychological analysis is good for short term moves. As André Kostolany said, the price movements on the markets are due to psychological reactions of audience and he separated crowd into two categories – players and speculators. Another famous theory is Keyness investment psychology, where is defined speculators and enterprise. There are theories, like Bubble theory, Greater fool theory and many others.

2.1 Global Analysis

Global analysis is the first part of fundamental analysis. It is based on identification, examination and scoring of influences of the whole economics. There are many influences like macroeconomic, technological, demographic, governmental and social that can determinate the valuating of assets. By researching of individual factors and share indexes can be seen some relationships or links which can help (in some cases) to understand as a starting point for prognostic of development of the future course.

2.1.1 Influences

The aim of this chapter is an attempt to evaluate the effects of various macroeconomics variables on stock indices like interest rates, inflation, politics of central banks and money supply. This chapter is based on *Veselá (2011)*.

Interest rates

Interest rates are one of the most important macroeconomic factors that influence stock markets. There was observed an inverse relationship between interest rates movements and stock market prices. It is because of a high and negative coefficient of correlation, it means that increasing of interest rates occur decreasing of stock market prices. There are a several reasons explaining this situation.

- Competitive of stock and bond market – when interest rates rise than profit oriented investor transfers his investments from stock market to the bond markets because of rate of return is there higher (when stock demand is falling, than the market price of stocks is falling).
- Discount factor – in meaning of required rate of return, uses for converting future value to present value. Discount factor is very sensitive on interest rates moves. Unexpected increasing of interest rates may occurred growth of required rate of return and decrease of present value of future income of shareholders and than the price of shares is falling.
- Corporate expenses – when interest rates rise, than rise costs of a company for external financing, companies are restricting investments and their profit is lower and it occur fall in stock markets.

Inflation

Inflation is the second influence and as well as interest rates there is a negative relationship between inflation and stock markets. It means that increasing of price level occurs decreasing of the stock market prices and the prices are falling. The correlation coefficient is lower than with interest rates so there is not such a strong dependence. In spite of the fact that shares are considered as a right securing instrument against inflation, in long term view shares are not able to keep its market price on a high level as is demonstrated in a numbers of economics researches.

Economic growth

The development of the stock markets is affected by economic development of domestic a worlds economic. There was proven a significant and positive correlation between the real economics output and stock markets. It can be seen with some time lags (sometimes a few years).

Governmental influences

In this case the governmental influences can be interpreted with increases and tax cuts. If the government decide to increase the taxes there is a negative effect on the stock markets because of causes. The first one is the view of investors who have a less disposal funds that could be invested, the investments activity is slowdown and share prices are falling. The second is the company's view. The higher the taxes are the lower is the net profit and it is related with lower dividends and falls of share prices.

Exchange rates

There is no correlation between exchange rates movements and stock markets. It means no possibilities of influences or common development of these two variables. The only case that can affect share prices of companies can be fact of international business in meaning of extra costs or revenues due variable exchange rates that affect profit of the companies as well as their share prices.

2.1.2 Timing mismatch between the interaction of variables

In the context of previous analysis of macroeconomics influences there may be a timing mismatch between individual variables. There are three types of timing mismatch

- leading indicators,
- coincident indicators,
- lagging indicators.

The first category, leading indicators of the business cycle, includes economic series that usually reach peaks or troughs before corresponding peaks or troughs in aggregate economic activity. Like an example of these variables can be mentioned monetary bid, stock prices, ICP and many others.

Coincident indicators, that have peaks and troughs that roughly coincide with the peaks and troughs in the business cycle, are total earning of employees, produced and sold goods

revenues, total industrial production or net incomes minus transfers. Many of these economic time series are used to define the different phases of the cycle.

Lagging indicators experience their peaks and troughs after those of the aggregate economy. It is for example average time of unemployment, labour cost per unit of output, change in index ICP, ratio inventories to revenues and many others.

2.2 Industry Analysis

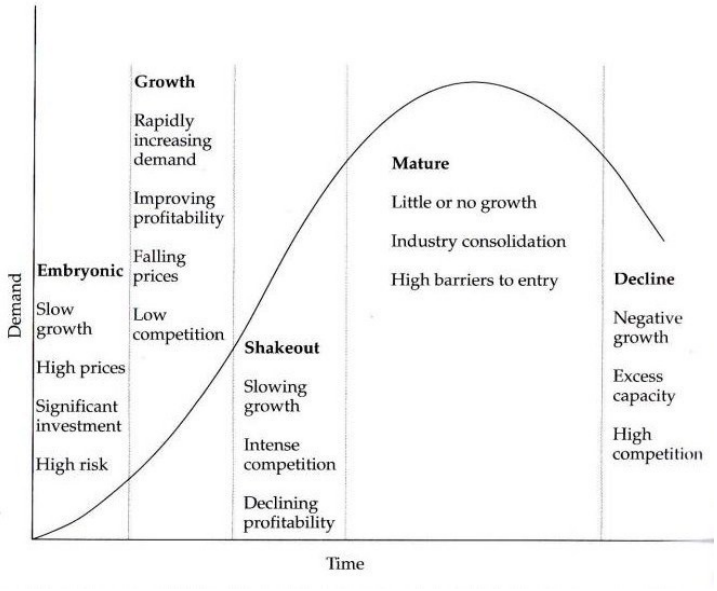
Industry analysis is the second part of fundamental analysis. This is the analysis of a specific branch of manufacturing, service or trade and provides an essential framework of individual company analysis. It is focused on the key factors of company to understand a company's business and its environmental, identification of active equity investment opportunities and portfolio performance attribution. Companies are groped into industries on basis of commonalities. The mayor parts of approaching of industry classification are products and services supplied, business cycle sensitivities, statistical similarities (based on historical correlations). Another approach of classifying companies into industries is separated on basic materials and processing (production of building materials, chemical, metal products), consumer discretionary (hotels, restaurants business), consumer staples (food, beverages), energy, financial services, health care, industrial durables (heavy machinery equipment), technology, telecommunications and utilities (gas, electric, etc.).

Another type of classification is The statistical Classification of Economic Activities developed in the European Community, known as NACE. It helps to classify businesses according the type of economic activity. There are the main factors influences industry analysis below.

2.2.1 Industry live cycle

Industries tend to evolve over time and usually experience significant changes in the rate of growth and levels of profitability along the way. According *McMillan (2011)* the five stages of an industry life-cycle model are embryonic, growth, shakeout, mature, and decline. The aim of industry analysis is determinate the stage in which the industry could possible be in. A useful framework for analyzing the evolution of industry is an industry life-cycle model, which identifies the sequential stages that an industry typically goes through. Each stage is characterized by different opportunities and threats.

Graph. 2.1 Industry live cycle



Source: McMillan, M. G. *Investments.* (2011, page 386)

Embryonic stage is an industry that it just beginning to develop. Characteristics of this stage include slow growth and high prices because customers tent to be unfamiliar with the industry's product and volumes are not yet sufficient to achieve meaningful economies of scale. Companies in this stage are trying to increase product awareness and to develop distribution channels that are key strategic initiatives of companies during this stage. The risk of failure is high.

Growth stage is characteristics by rapidly increasing demand, improving profitability, falling prices, and relativity low competition among companies in the industry. There are a number of new customers entering the market that fuels demand and prices fall and companies have economies of scale and develop distribution channels. The threat of new competitors entering the industry is usually the highest; the barriers to entry are low.

Shakeout stage is usually characterized by slowing growth, intense competition, and declining profitability. During this stage companies often cut prices in afford to boost volumes and industry profitability begins to decline that is why are companies focused on restructuring theirs cost. Another focus point is building the brand loyalty.

Mature stage is characteristics by include little or no growth, industry consolidation, and relatively high barriers to entry. Industry growth tends to be limited to replacement demand and population expansion because the market at this stage is completely saturated. Mature industries often consolidate and become oligopolies. Periodic price wars do occur

especially during economics downturns and the companies with superior products or services are likely to gain market share and experience above-industry-average growth and profitability.

Decline stage is characteristics by turning industry growth to negative, excess capacity develops, and competition increases. Industry demand at this stage may decline for a variety of reasons, including technological substitution, social changes, and global competition. The price wars continue and the weaker companies often exit an industry, do the merge or redeploy capital into different products.

2.2.2 Business-Cycle Sensitivities

Companies are divided into cyclical, neutral, and noncyclical companies on the basis of their relative sensitivity to the business cycle. Profits of **cyclical company** strongly correlate with the strength of overall economy. During an expansion there are great profits and on the opposite side, during a recession these companies can get easily into the problems. It is caused by products and services that are not necessary at the moment and their consumption may be deferred. Examples of cyclical industries are technology, autos, housing or basic materials and industrials. Business-cycle **neutral company** is characteristic by no or very low dependent on the business cycle. These companies produce goods and services necessary for consumption, for example food and medicine products. **Noncyclical company** performances an opposite evolution than cyclical company and business cycle and large independent on the business cycle. Generally, most of noncyclical companies produce cheap goods or services that can easily substitute very expensive goods during crisis. For example people may substitute expensive holidays for staying at home watching television.

2.2.3 Structure of market

Structure of market may occur by the different progress in evolution of revenue, profits and stock prices. Within this chapter there are monitored the following criteria like numbers of companies, barriers to entry/success, level of concentration, impact of industry capacity, industry stability, life cycle, price competition, demographic influences, governmental and regulatory influences, technological influences.

Tab. 2.1 Structure of market

Market structure	Perfect competition	Imperfect competition		
Criteria		**Monopoly**	**Oligopoly**	**Monopolistic competition**
Number of companies	many	one	little	many
Product	homogeneous	one, with no close substitutes	identical	differentiated
Barriers to entry	no barriers	large, almost insurmountable	large, but surmountable	small, surmountable
Pricing	no influence on price	price leader	a significant proportion	limited proportion

Source: author, based on (Veselá, 2011)

2.2.4 Governmental regulations

Governmental influence on industries revenues and profits is pervasive and important. In setting tax rates and rules governments affect profits and incomes, which in turn, affect corporate and personal spending. Governments are also major purchasers of goods and services from a range of industries. As is stated by *Veselá (2011)* there are the follow kinds of governmental regulations.

- Licensing – (licensing terms) that can reduce number of subject acting on the market. With a lower competition companies have a bigger change to reach the higher profit.
- Pricing – setting the price caps and limits which are used to determinate the upper limit for prices movements. Frequently used in utilities like gas or electronic industry.
- Regulation that cause additional costs – which is represented by sanctions and penalties used when infringement of set rules and limits. This is characteristics for environmental cases. These extra costs negative occur to the profit of individual company. On the other side there are some grants and subsidies that have a positive effect on the profit.

2.3 Company Analysis

Company analysis includes an analysis of the company's financial position, product and services, and competitive strategy (threats and opportunities presented by external environment). This analysis is the third and the most important part of whole fundamental analysis. As an aim of company analysis is setting an intrinsic value of share, and a following investments recommendation.

This chapter is separated into the three main parts. The first one is financial analysis of company (based on financial indicators), and the second one is focused on models for setting an intrinsic value of shares. In the end of chapter there is a short description of SWOT analysis.

2.3.1 Financial Analysis

Financial analysis is an essential part of the management of a company, which helps to evaluate economics situation of individual company. It aims to comprehensively assess the financial health of the company and try to estimate a future development. Financial analysis based on historical financial statements of the company and it is a premise of estimating the intrinsic value of assets. Generally it is an analysis of data, which are obtained from financial statement of company (balance sheet, profit and loss statement and statement of cash flow).

Generally, financial analysis is divided into horizontal common – size analysis, where is analyzing the evolution of financial statements data over the time. The second part is vertical common – size analysis, in which are explored changes in the proportions of selected items, e.g. total assets, total revenues, etc. Financial analysis allows the comparison of the results of individual indicators over time (to identify the trends and major differences), and also inter - company.

Financial analysis uses absolute indicators and ratios, which are classified into these the most frequently used groups

- profitability ratios,
- activity ratios,
- liquidity ratios,
- solvency ratios,
- capital markets ratios.

Profitability ratios

Profitable ratios analyze the company's ability to generate profit from invested capital. Basically it is defined as a ratio of earnings and capital. Profitability ratios are one of the most popular ratios evaluating company's efficiency. The data are used from balance sheet and profit and loss statements. There are four basic ratios of profitability in different forms divided by type of used capital like Return on Assets (ROA), Return on Equity (ROE), Operating Profit Margin (OPM), and Net Profit Margin (NPM).

Return on equity (*ROE*) expresses the total productivity of equity. This shows how efficiently is a company able to use its assets for making profits. The percentage of net income that falls on one unit of equity (how the assets are financed), can be calculated as

$$ROE = \frac{NI}{E}, \tag{2.1}$$

where NI is net income, and E is shareholders equity.

Return of assets (*ROA*) is considered a key ratio of Profitability because *ROA* measure firm profitability reflecting how effectively and efficiently the firm's assets are used. The higher is the net income for a given amount of assets, the better is the return. The *ROA* is calculated as

$$ROA = \frac{NI}{A}, \tag{2.2}$$

where A are an assets.

Operating Profit Margin is a ratio used to measure a company's pricing strategy and operating efficiency. OPM is a measurement of what proportion of company's revenue is left over after paying for variable costs of production (wages, raw material). A healthy OPM is required for a company to be able to pay for its fixed cost, especially interest on debt.

$$OPM = \frac{EBIT}{total revenues}, \tag{2.3}$$

where $EBIT$ is earnings before interest and taxes.

Net Profit Margin (NPM) evaluate how much of net income falls on one unit of the sales. The company's ability to reach a profit at the set level of revenues is examined using NPM. When the ratio is very low is the sight of a poor management in company. The higher

the ratio is the better is the management in company. NPM is mostly used for intercompany comparison and is calculated as

$$NPM = \frac{NI}{total revenues}. \tag{2.4}$$

Activity ratios

Activity ratios express how well company uses its assets, generally, how effectively is the company able to manage its assets and its individual components. There are two cases of activity ratios. The first ones are the indicators showing the number of rotations of individual components. The turnover period is a number of days necessary to lasts of one turn. The second one is the turnover rate that expresses the number of turns for a certain period, mainly one year.

Total assets turnover (TAT) measure the turn or the intensity of use. The higher ratio, the better (more effectively) uses company its assets.

$$TAT = \frac{revenues}{total assets}. \tag{2.5}$$

Turnover period of assets (TPA) is an inverse value of previous indicator. There is expressed how long it takes to turn the total assets relative to revenues. The shorter time is better.

$$TPA = \frac{total assets \cdot 360}{revenues}. \tag{2.6}$$

Inventory turnover (IT) measures the level of utilization of company's inventories. The growing trend is desirable.

$$IT = \frac{revenues}{inventories}. \tag{2.7}$$

Turnover period of inventories (TPI) characterizes the level of a current operational management. The indicator is sensitive on performance changes.

$$TPI = \frac{inventories \cdot 360}{revenues}. \tag{2.8}$$

Receivables turnover (RT) is used to quantify a firm's effectiveness in extending credit as well as collecting debts.

$$RT = \frac{revenues}{receivables}. \tag{2.9}$$

Turnover period of receivables (TPR) is characteristics for receivables managing. It expresses in how long are invoices paid in average. If the maturity of invoices is higher than TPR, than company has a problem with customers' payment discipline.

$$TPR = \frac{receivables \cdot 360}{revenues}. \tag{2.10}$$

Short – term liabilities turnover (TL) measures payment discipline of the company.

$$LT = \frac{revenues}{short-termliabilities}. \tag{2.11}$$

Turnover period of short – term liabilities (TPL) shows how many days were provided as credit by suppliers.

$$TPL = \frac{short-termliabilities \cdot 360}{revenues}. \tag{2.12}$$

Liquidity ratios

Liquidity ratios analyze company's ability to meet its immediate and short-term debts. It expresses solvency of the company. The data of liquidity ratios comes from the balance sheet of the company. There are three liquidity ratios – current ratio, quick ratio and cash ratio below.

Using **Current Ratio** measures a volume of current assets with volume of short-term liabilities. It is very necessary to cover short-terms liabilities when due with short-term assets to avoid selling fixed asset.

$$CurrentRatio = \frac{currentassets}{short-termliabilities}. \tag{2.13}$$

Quick Ratio measures a volume of total quick asset with volume of short-term liabilities. Total quick asset is composed of cash, cash equipments, marketable securities and

accounts receivables. The growing progress of quick ratio expresses an improvement of financial situation of company. The expression of quick ratio is Equation (2.14).

$$Quick\,Ratio = \frac{total\,quick\,assets}{short-term\,liabilities}. \tag{2.14}$$

Cash Ratio is a third ratio of liquidity. There are measured quick payments facilities as a cash, cash on an account, and short – term checks with a short – term liabilities. Cash ratio is used as an additional indicator.

$$Cash\,Ratio = \frac{quick\,payments\,facilities}{short-term\,liabilities}. \tag{2.15}$$

Net Working Capital represents part of current asset that is covered by long – terms funds. There are two approaches to get NWC.

$$NWC = current\,A - short-term\,liab., \text{ or } NWC = long-term\,funds - fixed\,A. \tag{2.16}$$

Solvency ratios

Solvency ratios measure a company's ability to meet its long-term debt and generate the cash flow. There are main ratios (Debts to Asset Ratio, Equity Ratio, Equity Multiplier, Debt to Equity Ratio, Interest Coverage Ratio) mentioned bellow.

Debts to assets Ratio, known as a total indebtedness ratio, express total ratio of company's debts to total assets. Higher value of this ratio means higher lender's risk.

$$Debts\,to\,assets = \frac{total\,debts}{total\,assets}. \tag{2.17}$$

Equity Ratio characterizes a long – term financial stability. The higher the ratio is, the better financial stability is in a company.

$$Equity\,ratio = \frac{total\,equity}{total\,assets}. \tag{2.18}$$

Equity Multiplier, known as a Financial Leverage is a financial criteria. Optimal is, when the Equity Multiplier is stable in a time. A leverage effect is usually used by companies to increase earning per share.

$$Equity multiplier = \frac{total\ assets}{total\ equity}. \tag{2.19}$$

Debt to Equity Ratio shows indebtedness of equity. It depends on development phase and shareholder's risk attitude. Stable company should reach ratio in the range of 80% to 120%.

$$Debts\ to\ equity = \frac{total\ debts}{total\ equity}. \tag{2.20}$$

Interest Coverage Ratio evaluates enterprise's effective economy. It express how many times are the interest expense covered by EBIT. The higher value is, the better is the financial situation in a company.

$$ICR = \frac{EBIT}{annual\ i}, \tag{2.21}$$

where *ICR* is interest coverage ratio, and *annual i* represents annual interest expense.

Capital market ratios

Market ratios are based on financial and market data, such as EPS (earning per share), price-to-earnings ratio and dividend payout ratio.

Earnings per Share (*EPS*) express the portion of a company's profit can be allocated to each outstanding share of common stock. Earnings per share serve as an indicator of a company's profitability. For investors an EPS figure is the bottom line – the item of major interest. EPS can be calculated as

$$EPS = \frac{NI}{Shares\ outstanding}. \tag{2.22}$$

Price-Earnings Ratio (P/E) is the valuation ratio of a company's market value per share divided by a company's earnings per share (EPS). The lower the *P/E* is in time (compared with other shares), the higher probability that the stock is undervalued and cheaper for the investor and it means a good investments opportunity. *P/E* can be calculated as

$$P/E = \frac{market\ price\ of\ shares}{net\ income\ per\ share}. \tag{2.23}$$

Dividend Yield (DY) shows how much a company pay out in dividends each year relative to its share price. In the absence of any capital gains, the dividend yield is the return on investment for a stock. Dividend yield is calculated as follows

$$DY = \frac{dividendpershare}{marketpriceof\ share}. \tag{2.24}$$

Altman Z-score

Altman Z-score was developed on the sample of 66 manufacturing companies and it uses variety of information from corporate balance sheet and income sheet. Formula for Z-score is expressed

$$Z = 1{,}2X_1 + 1{,}4X_2 + 3{,}3X_3 + 0{,}6X_4 + 1{,}0X_5, \tag{2.25}$$

where individual independents are next

$$X_1 = \frac{workingcapital}{total\ A}, \tag{2.26}$$

$$X_2 = \frac{retainedearnings}{total\ A}, \tag{2.27}$$

$$X_3 = \frac{EBIT}{total\ A}, \tag{2.28}$$

$$X_4 = \frac{marketvalueequity}{valueof\ totalliabilities}, \tag{2.29}$$

$$X_5 = \frac{sales}{total\ A}, \tag{2.30}$$

where Z means score, X_1 express Net liquid assets relative to total capitalization, X_2 reflected company's age, retained earnings is the total amount of reinvested earnings and losses over company's lifetime, X_3 measures true profitability, X_4 combined value of all shares of stock and express how far assets can decline before the company becomes insolvent, and X_5 known as Capital – turnover ratio, where is measured ability of assets to generate sales.

Resulting Z score is classified into the Zones of discriminations. If $Z > 2{,}99$, than is "Safe" zone, if $1{,}8 < Z < 2{,}99$, than is "Grey" zone, and if $Z < 1{,}88$, than is "Distress" zone. Score below 1,8 means a company is in financial distress, and likely to declare bankruptcy.

2.3.2 Estimation the intrinsic value of assets

This chapter is focused on estimating the intrinsic value of assets. This is the main aim of fundamental analysis. It helps to investors to make a decision whether the selected asset is good investment. Resulting value of asset, known as an intrinsic value is compared with a market price of asset. If the intrinsic value is higher than the current market price, than the asset is undervalued, and it is a signal for investors to buy it. If the intrinsic value is lower than a current market price than the asset is overvalued, and in case of the same value of an intrinsic value and a current market price that the asset is fairly valued.

There are used numbers of models and methods according a data types used. There are the basics method mentioned below. Whole chapter is based on *Veselá (2011).*

- Dividend discount models,
- discounted cash flows,
- multiple models,
- balance models,
- historical models.

Dividend discount model

Dividend discounted model (DDM) is the simplest present value model of equity valuation where are specified cash flows from a common stock investment to be dividends. Dividend discount model is based on literature *McMillan (2011) and Veselá (2011).* There are two cases of DDM. The first one assumed the issuing company as a going concern (unlimited period of tenure), and the second one assumed the shares as a limited period of tenure.

If there is assumed that the issuing company is a going concern, the intrinsic value of a share is the present value of expected future dividends. If a constant required rate of return is also assumed, then the DDM expression for the intrinsic value of share is Equation

$$V_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1+r)}, \tag{2.31}$$

where V_0 is an intrinsic value of a share of stock today (at time t =1), D_t is expected dividend in a year t, assumed to be paid at the end of the year, and r is required rate of return on the stock.

If an investor intends to buy and hold a share for one year, the value of the share today is the present value of two cash flows – the expected dividend plus the expected selling price in one year according Equation

$$V_0 = \frac{D_1 + P_1}{(1+r)} = \frac{D_1}{(1+r)} + \frac{P_1}{(1+r)}, \tag{2.32}$$

where D_1 is the expected dividend at time t =1 (next year), P_1 is expected price per share at $t=1$.

Generally the dividend discount model with a final shareholding could be expressed as

$$V_0 \sum_{n=1}^{N} \frac{D_n}{(1+r)^n} + \frac{P_N}{(1+r)^N}, \tag{2.33}$$

where N is number of years of holding a share, D_n is expected dividend paid in each year, P_N is expected share price at the end of shareholder's holding,

Some companies are paying constant dividends, some growing or decreasing dividends, with the same or variable growth rate, according the conditions of company's environmental.

Dividend discount model with zero growth can be calculated according

$$V_0 \sum_{n=1}^{N} \frac{D_{const}}{(1+r)^n}, \tag{2.34}$$

where N is equal to infinity, assuming unlimited period of tenure. Easily a formula can be changed, than looks like Equation (2.35). It is mostly used for valuation of priority shares.

$$V_0 = \frac{D_{const}}{r}. \tag{2.35}$$

Actually, in a market environmental it is probable to expect no changes in dividends, required rate of return for a long term.

Dividend discount model with expected growth rate is shown in next formula.

$$D_n = D_0(1+g)^n, \tag{2.36}$$

where g expresses growth (decline) rate of dividends. This model was developed by Myron J. Gordon, and it is known as a **Gordon one – step dividend discount model**, according formula (2.37). This model is based on assumptions that constant expected rate of return must be higher than constant growth rate of dividends, and unlimited period of tenure. This model

is mostly used for valuation of assets which company is in mature stage, neutral business cycle, monopolistic or regulated industry *(Veselá, 2011).*

$$V_0 = \frac{D_1}{r-g} = \frac{D_0(1+g)}{r-g}. \tag{2.37}$$

Two-stage dividend discount model is used for estimating of intrinsic value of assets with two or more different growth rates of dividends. Holding period of shares is divided into two stages. First stage is always finite, corresponding with growth rate g_1. Second stage can be finite or infinite, with growth rate g_2. Practically, the most of investors are oriented on valuation of more interesting companies with g_1 above the average and also higher than g_2. The second stage is based on Gordon model, assuming the infinite holding. Formula (2.38) expresses two stage dividend discount model.

$$V_0 = \sum_{t=1}^{T} \frac{D_0(1+g_1)^t}{(1+r)} + \frac{D_0(1+g_1)^T(1+g_2)}{(1+r)^T(r-g_2)}. \tag{2.38}$$

In another case, there is two-stage dividend discount model with finite holding period of second stage, according formula (2.39).

$$V_0 = \sum_{t=1}^{T} \frac{D_0(1+g_1)^t}{(1+r)} + \sum_{n=T+1}^{T} \frac{D_0(1+g_1)^T(1+g_2)^{n-T}}{(1+r)^n} + \frac{P_N}{(1+r)^N}, \tag{2.39}$$

where T expresses the duration of the first finite stage. This method is suitable for cyclical companies and for companies that dividend will probably change in time.

Three-stage dividend discount model is historically the oldest one, developed by Nicolas Molodovsky. Holding period of shares is divided into three stages, growth stage, transitional stage, and normal (average) stage. In the first-stage is stable and above the average growth rate g_a. In the second-stage g_a is falling to the average growth rage g_n, that is used in the third-stage, where is expected infinite holding period of a share. In a second-stage, the growth rate is g_t and is calculate according formula (2.40).

$$g_t = g_a - (g_a - g_n)\frac{t-A}{B-A}, \tag{2.40}$$

where A is duration of the first-stage, B expresses total of fist-stage and second-stage.

Calculation of intrinsic value of asset based in three-stage dividend discount model is shown in Equation (2.41).

$$V_0 = \sum_{t=1}^{A} \frac{D_0(1+g_a)^t}{(1+r)^t} + \sum_{t=A+1}^{B} \frac{D_{t-1}(1+g_t)}{(1+r)^t} + \frac{D_B(1+g_n)}{(1+r)^B(r-g_n)}, \tag{2.41}$$

where D_0 is usual dividend paid in the beginning of holding, D_{t-1} is dividend paid in the period *t-1*, D_B is dividend paid in the end of the second-stage (period *B*), g_a is growth rate above the average dividend of the first-stage, g_t is growth rate of dividend in time *t*, g_n is growth rate of dividend in the third-stage, *r* is required rate of return of assets, and *t* is number of years since begging of expected holding period of the asset.

Three-stage dividend discount model is useful for cyclical companies with expecting growth rate above the average.

Discounted cash flows models

Discounted cash flow models include a number of different models, while two main ones are mentioned in this thesis, Model Free Cash Flow to Equity (FCFE), and Model Free Cash Flow to Entity (FCFF). These models are focused on detection which part of value falls into the shareholders (owners of company). This value is important for financial management of company *(Veselá, 2010).*

Model Free Cash Flow to Equity (FCFE) is based on pricing of total capital. First, it is necessary to calculate free cash flow according Equation (2.42).

$$FCFE = NI + depreciation - IE - \Delta WC - PD, \tag{2.42}$$

where *NI* is net income, *IE* is investment expenditures, ΔWC is change in working capital, and *PD* are payments of debts.

Free cash flow is discounted by total capital cost, *WACC* (weighted average capital cost). The aim of method is market pricing of total capital of company.

$$V = \frac{FCFF}{WACC}. \tag{2.43}$$

Model Free Cash Flow to Entity (FCFF) is based on pricing of equity capital. Free cash flow to entity expresses Equation (2.44)

$$FCFF = NI + depreciation - IE - \Delta WC + i(1-t), \tag{2.44}$$

where *i* expresses an interests.

After that, the free cash flow is discounted by costs of equity, R_E to get an intrinsic value of asset.

$$V = \frac{FCFE}{R_E}. \tag{2.45}$$

Free cash flows are mostly constructed as a multi-stages FCF models. Analytics usually use two or three-stage free cash flow models, which are based on the similar approach as discounted dividend models.

Two-stage FCF model is more realistic for use than the basic methods of FCFE and FCFF. Cash flows are separated into two-stages. First-stage is usually planned for period 4-6 year to get more accurate results. Value of the first-stage (V_1) is calculated as Equation (2.46), *Dluhošová (2010).*

$$V_1 = \frac{\sum FCF_t}{1+R_1}, \tag{2.46}$$

where R_1 are cost of capital (*WACC* in case of *FCFE*, R_E in case of *FCFF*).

The second (infinite) stage V_2 is supposed to set and make the estimation according Equation (2.47).

$$V_2 = CV \cdot (1+R_1)^{-T}, \tag{2.47}$$

where *CV* expresses value of asset for the second-stage at the moment of beginning the second-stage. It is known as continuing value, calculated as formula (2.48).

$$CV = \frac{FCF_{T+1}}{R_2},\ CV = \frac{FCF_{T+1}}{R_2 - g}. \tag{2.48}$$

where FCF_{T+1} are free cash flows of the second-stage. It is discounted by cost of capital of the second-stage, R_2.

An intrinsic value of asset (*V*) is expressed as total for first-stage (V_1) and second-stage (V_2).

$$V = V_1 + V_2. \tag{2.49}$$

More accurately, substituting into general Equation (2.47) there is a new Equation (2.48) for estimation of intrinsic value of asset.

$$V = \sum_{t=1}^{T} FCF_t \cdot (1+R_1)^{-t} + \frac{FCF_{T+1}}{R_2} \cdot (1+R_1)^{-T}. \tag{2.50}$$

Multiplier models

Multiplier models are working with time value of money. The intrinsic value is based on items of profit. These models are divided by used category of profit. The most common and famous method is P/E Ratio, than P/BV, and P/S.

P/E Ratio (price-to-earnings ratio) this measure is the ratio of the stock price to earnings per share. Assumption for estimating an intrinsic value of share is knowledge of regular P/E Ratio (mentioned in Chapter 2.3.1 Financial Analysis). It expresses how much is investor able to pay for one unit of profit generated by issued company.

Ordinary P/E is ratio of actual (normal) stock value and a normal profit per share (the latest published profit of a company. This P/E ratio is the most frequently cited by the media and used by analysts and investors.

Normal P/E ratio is based on Gordon one-stage dividend discounted model with constant growth rate. An assumption is to split the net income into two parts; the first one is in the form of dividend, the second one as a retained profit. Dividends from Gordon DDM are substitute by expected net earnings E_1 multiple dividend payout ratio p which is expressed as ratio of net income paid to shareholders as dividends. DDM is transformed on multiple model by using this change, and it is calculated in Equation (2.51).

$$V_0 = P_0 = \frac{D_1}{r-g} = \frac{E_1 \cdot p}{r-g} = \frac{E_1(1-b)}{r-g}, \tag{2.51}$$

where V_0 is an intrinsic value of share, P_0 is current rate (price) of correctly valued asset, p is dividend payout ratio, which is calculated as constant D_1/E_1, b is retention ratio with validity of $p+b=1$; E_1 is expected income in next year, r is required rate of return of assets, and g is profit growth rate (identical with dividend growth rate, if p is constant).

Dividing the Equation (2.51) by expected income in next year is possible to calculate a normal P/E Ratio, shown in an Equation (2.52).

$$(P/E)_N = P_0 / E_1 = \frac{p}{r-g}. \tag{2.52}$$

The estimating of an intrinsic value of share is calculated using following formula.

$$V_0 = (P/E)_N \cdot E_1, \tag{2.53}$$

where E_1 is expected net income per share, which is predicted by analytics for next period.

P/BV Ratio (price-to-book ratio) is the ratio of the stock price to book value per share. Book value is calculated as assets minus liabilities. Considerable evidence suggested that P/B multiples are inversely related to future rates on return. P/BV ratio shows how much money are investors able to pay for unit of company capital. This ratio is based on Gordon one-stage discount dividend model that is transformed of multiple model according Equation (2.54).

$$V_0 = P_0 = \frac{D_1}{r-g} = \frac{E_1 \cdot p}{r-g} = \frac{BV_1 \cdot ROE \cdot p}{r-g}, \tag{2.54}$$

where BV_1 means an expected book value of equity per share. Expected net income per share is divided on expected book value in next year multiple return on equity per share.

Now, to get P_0/BV_1 ratio (ratio P/BV of stable firm reflecting expected book value per share) is necessary to transform Equation (2.54) dividing expected book value per share $BV1$.

$$P_0 / BV_1 = \frac{ROE \cdot p}{r-g}. \tag{2.55}$$

Calculation of common book value per share is in Equation (2.56).

$$V_0 / BV_0 = \frac{ROE \cdot p \cdot (1+g)}{r-g}. \tag{2.56}$$

P/S (price-to-sales ratio) this measure is the ratio of stock price to sale per share provided evidence that a low P/S multiple is the most useful multiple for predicting future returns. An intrinsic value of shares is expressed in (2.57).

$$V_0 = P_0 = \frac{D_1}{r-g} = \frac{E_1 \cdot p}{r-g} = \frac{S_1 \cdot M_1 \cdot p}{r-g}, \tag{2.57}$$

where S1 are the expected sales in next year, M1 is profit margin in next year, calculated as a ratio of expected net income and revenues in next year.

To get P_0/S_1 is the Equation (2.57) divided by expected sales S1. After this change is the new Equation (2.58).

$$P_0 / S_1 = \frac{M_1 \cdot p}{r - g}, \tag{2.58}$$

where P_0/S_1 is *P/S* ratio based on common "right" value of share and expected sales per share. Value of profit margin influences whole ratio; first, M_1 is included in common calculation of *P/S* ratio, and second, M_1 is hidden in grow rate of profit, counted using Equation (2.78).

Ratio P_0/S_1 is transformed on intrinsic value by multiplying expected sales for next year. The result value corresponds with Sharp *P/E* ratio.

$$V_0 / S_0 = \frac{M_0 \cdot p \cdot (1 + g)}{r - g}. \tag{2.59}$$

Balance models

These models are based on balance sheet data. It is considered as a simply method because the time value of money is not respected there. There are five basic methods below as it is presented in *Veselá (2011).*

Book value is very easy to get an input data. It is determined as a difference of total assets and liabilities divided by number of issued shares. As a result there is an accounting value of assets. An intrinsic value is represented by this value. Book value is not ideal method for estimating an intrinsic value due to historical prices which does not match with actual market prices of assets.

$$IV = \frac{A - liabilities}{number of issued shares}. \tag{2.60}$$

Substantial value is based in a book value. But all items from balance sheet are there revaluing on actual market prices. It is done because of assets represents future revenues for company. An assets assigned weigh, which is multiplied with individual assets and thereafter is summarised. Disadvantage is intangible assets (e.g. knowhow, goodwill, value of management, patents, license, qualification of employees etc.), which are not included in balance sheet. That is why these items are assigned by coefficients of significance. Modified values of assets and intangible assets are summarised and than expressed per share.

$$IV = \frac{\sum revalued assets}{number of issued shares}. \tag{2.61}$$

Liquidation value is expressed by quantity of money if the company finish activity, sell all assets, and pay debts and liquidation costs. Liquidation value represents lower limit for movements of market prices. In case of market price is below this value, the company is very attractive for takeover.

The replacement value is value of company that should be in case of all company's assets would be purchased by market prices. Replacement costs are the cost for repurchase of assets, which are expressed in current prices.

Substantial value is a method of estimating an intrinsic value of assets using the main characteristics of ratios like P/E, P/BV, or P/S of comparable companies.

Historical models

Historical models are using data form previous period, which are averaged. An intrinsic value is set by this base. Time value of money is not respected here.

Model (P/S) determines an intrinsic value of asset on base of ratio of historical share price and an average historical amount of sales per one share, like Equation below.

$$(P/S)_H = \frac{P_A}{S_A}, \tag{2.62}$$

$$IV = (P/S)_H \cdot S_1, \tag{2.63}$$

where $(P/S)_H$ is a historical ratio of assets price and sales, P_A is average historical share price, S_A is average historical amount of sales per one share, IV is common intrinsic value of share, and S_1 is expected amount of sales for next year.

Model (P/D) the second historical model. The procedure is the same as before. There is a ratio of historical share price and an average historical value of dividends. It is calculated like

$$(P/D)_H = \frac{P_A}{D_A}, \tag{2.64}$$

$$IV = (P/D)_H \cdot D_1, \tag{2.65}$$

where $(P/D)_H$ is a historical ratio of assets price and dividends, P_A is average historical share price, D_A is average historical dividends, IV is common intrinsic value of share, and D_1 is expected dividend in next year.

Model (P/BV) is the third method of historical models. Intrinsic value of asset is calculated as a ratio of historical share price and an average historical book value per share, according the next Equation.

$$(P/BV)_H = \frac{P_A}{BV_A}, \tag{2.66}$$

$$IV = (P/BV)_H \cdot BV_1 \tag{2.67}$$

where $(P/BV)_H$ is a historical ratio of assets price and book value of , P_A is average historical share price, BV_A is average historical book value, IV is common intrinsic value of share, and BV_1 is expected book value per asset in next year.

Model (P/CF) is the fourth method of historical models. It is based on ratio of historical share price and an average historical cash flow per share, according

$$(P/CF)_H = \frac{P_A}{CF_A}, \tag{2.68}$$

$$IV = (P/CF)_H \cdot CF_1 \tag{2.69}$$

where $(P/CF)_H$ is a historical ratio of assets price and cash flow, P_A is average historical share price, CF_A is average historical value of cash flow per share, IV is common intrinsic value of share, and CF_1 is expected cash flow for next year.

Input data

To estimate an intrinsic value of assets based on dividend discount models, models cash flow, or multiply models, is necessary to set up the grow rate of dividend, profit and cash flow, expected rate of return, and value of expected dividend.

Grow rate of dividend

There are three main approaches to estimate grow rate of dividend *(Veselá, 2010)*. The first one is based on historical data and linear regression, second one uses analytics' subjective estimations and prediction, and the third one is based on financial ratios.

Historical data assessment grow rate of dividend assuming historical series of dividends. This is the easiest way of estimation an intrinsic value. Basically, calculation of grow rate of dividend using two values of paid dividends is according next Equation.

$$g = \sqrt[t]{\frac{D_M}{D_S}} - 1, \tag{2.70}$$

where g is dividend grow rate, D_M is the newest dividend and D_S is dividend paid in previous period. The calculated grow rate of dividend can be the same in a future, or it can be changed. It depends on grow potential of the company. In practise the year dividend is always averaged from the interim ones.

Estimation growth rate of dividend using linear regression is based on time series of historical dividend. Construction of linear regression is done via MS Excel or some other computers programmes.

Estimation growth rate of dividend based on analytics' predictions is very subjective method of estimation. In many cases this prediction is more accurate, because experienced analytics uses macroeconomics predictions that are not included in historical assessment.

Estimation growth rate of dividend based on financial ratios is mainly using profitability ratios, ratios of equity, profit margin, dividend payout ratio, and many more. This method is known as a

$$g_D = \frac{D_{t+1} - D_t}{D_t} = g_E = \frac{E_{t+1} - E_t}{E_t}, \tag{2.71}$$

where g_D is growth rate of dividend between $t+1$ and t, g_E is growth of earnings between $t+1$ and t, assumption constant p and b, D_t+1 is dividend paid in $t+1$, D_t is dividend paid in t, E_{t+1} are earnings for period $t+1$, and E_t are earnings for period t.

Net income of company in t+1 can be determinate as

$$E_{t+1} = ROE_t \cdot EQ_t = ROE_t \cdot BV_t, \tag{2.72}$$

where ROE_t is return on equity in time t, EQ_t is company's equity in t, and BV_t is book value of company in t, assumption BV is calculated as balance sheet data, assets minus liabilities.

Company's net income in t is according

$$E_t = ROE_{t-1} \cdot EQ_{t-1} = ROE_{t-1} \cdot BV_{t-1}, \tag{2.73}$$

where ROE_{t-1} is return on equity in *t-1*, EQ_{t-1} is value of equity in *t-1*, BV_{t-1} is book value of company in *t-1*, assumption $EQ_{t-1}=BV_{t-1}$.

Growth of earnings using substitution from previous Equations is determinate as

$$g = \frac{ROE_t \cdot BV_t - ROE_{t-1} \cdot BV_{t-1}}{ROE_{t-1} \cdot BV_{t-1}}. \tag{2.74}$$

Assumption fixed return on equity, $ROE_t=ROE_{t-1}$ can be Equation (2.73) modified as

$$g = \frac{ROE(BV_t - BV_{t-1})}{ROE \cdot BV_{t-1}} = \frac{BV_t - BV_{t-1}}{BV_{t-1}}. \tag{2.75}$$

A year change in book value is set by part of net income up, which is retained in company. Using ROE can be expressed a retained net income produced in company by appreciation of book value, according

$$E_t = (BV_{t-1} + b \cdot E_t) \cdot ROE = BV_t \cdot ROE, \tag{2.76}$$

$$g = \frac{BV_t - BV_{t-1}}{BV_{t-1}} = \frac{b \cdot E_t}{BV_{t-1}}, \tag{2.77}$$

where b is retention ratio.

A final version of this model, assumption book value ratio and earnings equal ROE, is Equation (2.78).

$$g = \frac{b \cdot E_t}{BV_{t-1}} = b \cdot ROE. \tag{2.78}$$

Growth rate of cash flow

Growth rate of cash flow is based on the same principle as a growth rate of dividends. Volatility of cash flow is higher. The calculation below assumes estimation via financial ratios, namely return on capital multiply by investment rate.

$$g_{FCF} = ROC \cdot b_R, \tag{2.79}$$

$$ROC = \frac{EBIT(1-t)}{IC}, \tag{2.80}$$

$$b_R = \frac{(CE - depreciation + \Delta NWC)}{EBIT(1-t)}, \tag{2.81}$$

where g_{FCF} is growth rate of cash flow, ROC is return on capital, b_R is investment rate, $EBIT$ expresses earnings before interests and taxes, IC is invested capital, CE is capital expenditure, ΔNWC is change in net working capital, and t is tax rate.

Expected rate of return

Expected rate of return is an essential tool in estimating an intrinsic value of asset because it respects time value of money. Using expected rate of return we can transfer future value of cash flow into the present value. The most common method of expected rate of return estimation is Capital assets pricing model, known as CAPM model. It is calculated in Equation (2.82).

$$E(r_i) = R_R + \beta_i (R_M - R_F), \tag{2.82}$$

where $E(r_i)$ is an expected rate of return produced by asset i or by portfolio i, R_F is risk free rate produced by instrument with zero value of systematic risk (in practice, risk free rate is presented as a 10Y Government Bond), β_i is beta factor of asset i, or portfolio i (can be calculated using linear regression), and R_M is expected market rate of return produced by market index.

2.3.3 SWOT analysis

SWOT analysis focuses on the four elements, Strengths, Weaknesses, Opportunities and Threats of company. It guides to identify the positives and negatives of the company.

These elements can be divided in positives and negatives inside the company (S and W), and outside – external environment (O and T). This method is mostly used in marketing but recently it has become much utilized method in financial marketing because it helps in strategic planning and in making decisions. SWOT analysis determines what may assist the company in accomplishing its objectives, and what obstacles must be overcome or minimized to achieve desired results.

As its name states, a SWOT analysis examines four elements:

- Strengths - internal attributes and resources that support a successful outcome.
- Weaknesses - internal attributes resources that work against a successful outcome.
- Opportunities - external factors the project can capitalize on or use to its advantage.
- Threats - external factors that could get the project in a danger.

Pict. 2.1 SWOT analysis

Source: http://andyeklund.typepad.com/creativestreak/2009/05/swot-analysis.html

3 Global and industry analysis

This chapter is addressed to the global and industry analysis in company TalkTalk, PLC. It is built on the previous theory chapter. In the first part, global industry, where are studied the main macroeconomics and governmental effects on the share prices. The second part, an industry analysis, is given to company's environmental, namely to telecommunication market.

3.1 Global analysis

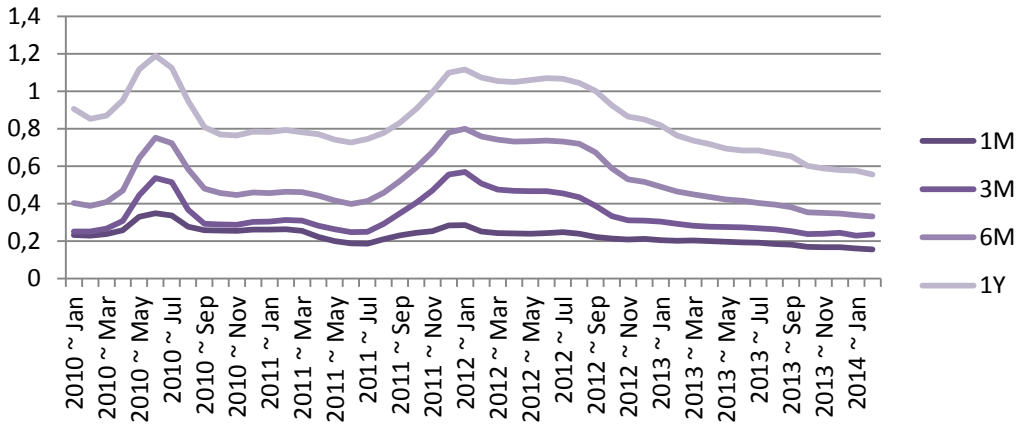
Global analysis examines relations between macroeconomics variables and share prices. This is especially analyses of interest rates, inflation, economic growth, governmental influences and exchange rates. This chapter is focused on historical evolution of these macroeconomics variables and its exceptional values. Information is based on Bank of England data, Inflation report 2014, and Office for National Statistics. TalkTalk, PLC is focused on British telecoms industry.

3.1.1 Interest rates

The main interest rate (and the most used) is LIBOR (London Interbank Offered Rates). It is considered as a wholesale cost of money in the London interbank money market. Libor is an average interest rate at which is selected group of banks that participate in London interbank money market can borrow unsecured funds from each other. There are many different LIBOR rates (maturities range from overnight to 12 month). LIBOR rates are fixed every UK business day by international media company Thomson Reuters in association with BBA (British Bankers association), a not-for-profit association.

There is a negative relationship between interest rates and share prices. According Bank of England there is supposed to keep low value of interest rates. Graph. 3.1 is showing the evolution of 1M, 3M, 6M and 1Y Libor rates.

Graph. 3.1 Development of LIBOR

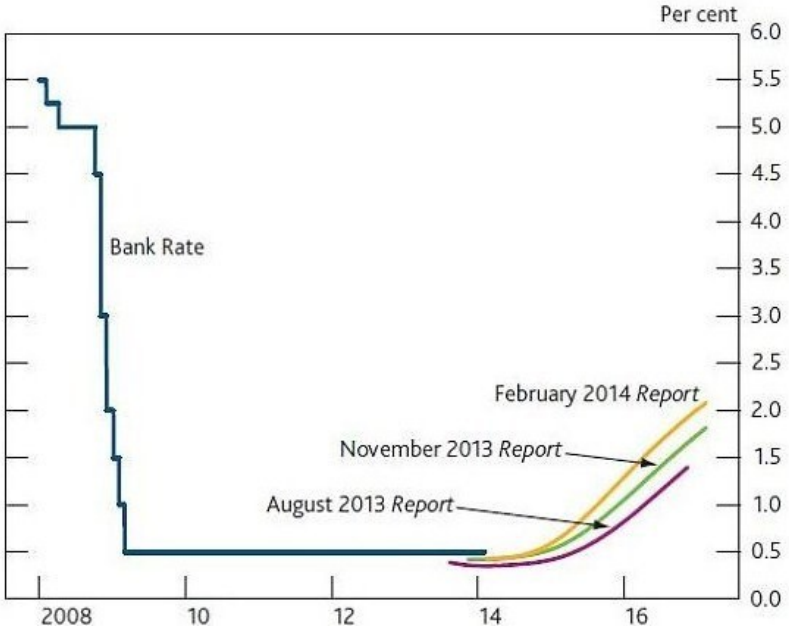


Source: author, data based on http://www.global-rates.com/interest-rates/libor/british-pound-sterling/gbp-libor-interest-rate-1-month.aspx

Graph 3.1 shows development of interest rates from January 2010 till January 2014. As it is visible, there is the same trend monitored in all rates. 1M LIBOR has lower volatility than 3M, 6M, and 1Y LIBOR. On July 2010 the GDP was on the peak, and central bank reacted by increasing interest rates. The maximum was on July 2010, when the value of 1M LIBOR was 0,3489%, but not for a long time. Interest rates have been relatively stable with slight decreasing since September 2010 till summer 2011. In 2012, British economy started falling into the recession and Bank of England had increased the rates to stimulate consumption. At the present time the interest rates are slowly falling.

Bank of England is planning to increase the exchange rate in a future. There are showed possible options of development in few years in Graph. 3.2.

Graph. 3.2 Exchange rates prediction



Source:http://www.bankofengland.co.uk/publications/Documents/inflationreport/2014/ir14febo.pdf

3.1.2 Inflation

Inflation expresses the growth of price level over of the period of the time. The CPI is the main UK domestic measure of consumer price inflation. It forms the basic for the Governmental s target for inflation that the MPC (Monetary Policy Committee) in Bank of England is required to achieve. There is a negative relationship between inflation and share prices. For a long time Britain was a high – inflation country comparing European Union.

In 2008 as the global financial crisis was taking hold, prices were rising up to 5% at an annual rate. There had been dramatic changes in the rate of inflation in recent years. In the middle of 2008, record high oil prices were feeding through to higher prices of goods and it caused increasing energy bills and a fall in the value of sterling also forced up the cost of imported goods. But by early 2009, the price of crude oil had slumped (it lost more than half of its value in less than six moths) and there was a global recession. At that time UK cut VAT from 17,5% to 15%. This step has happened in an effort to stimulate spending. Because of these circumstances an inflation rate was falling.

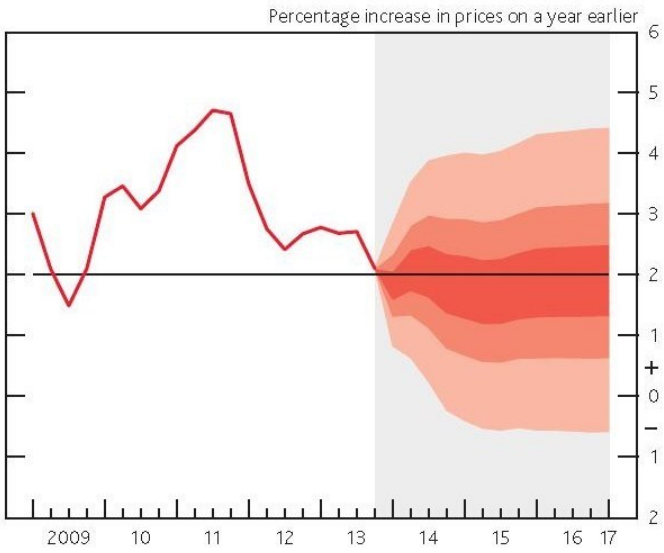
In the beginning of 2010 the VAT went back up to 17, 5%, and 2011 was increased again to 20% (because of deficit – reduction plan). Big rises in gas and electricity bills together with transport costs and food prices pushed the price level even higher. By late 2011 prices were rising again, with CPI at 5, 2% matching the record high set in September 2008.

Since that time the inflation rate has slowly subsided as the impact of VAT rises and higher energy costs have fallen away. The Bank's monetary policy committee expect inflation to fall rapidly throughout 2012. During the second half of year 2012 the inflation fell from 3, 5% to 2, 2%. That fall was caused by transport, recreation and culture, miscellaneous goods and services, etc. as it was mentioned in a Consumer Price Indices, September 2012 by Office for National Statistics.

After four years above the target the inflation rate is back at 2%. At the end of a year 2013 the inflation rate was falling, according (ONS) after the oil prices (almost 6%), and commodity (more than 10%) decreased. The sterling has appreciated and unit labour costs have raised less that their average historical rate.

At this time the UK recovery has gained momentum and inflation has returned to the 2% target. The inflation environment is more benign that it was anticipated. On February 2014 reached the lowest lever in last four years on 1, 7%. There is Graph. 3.3 below showing the inflation rate evolution.

Graph. 3.3 Development of Inflation, index CPI



Source: Bank of England, Inflation Report 2014

As is visible from the chart above in the end of the year 2013 was CPI falling (almost one percentage point since June). The new inflation expectations are based on the good and medium – term expectation close to past averages. MPC has issued an opinion of the outlook for CPI inflation. With the highest probability (30%) the expected inflation in the deepest red place, with another 30%, together 60% the inflation will meet the middle red place. With adding another 30% (total 90%) the inflation will reach level marked on the picture. There is

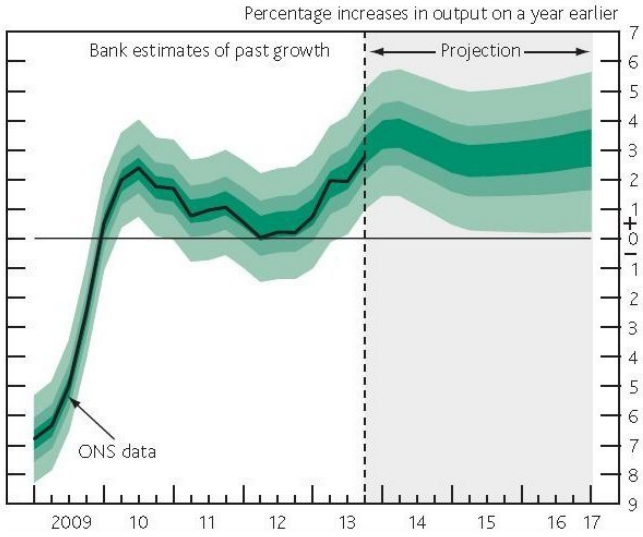
only 10% chance, which the inflation will be in a knockout. This inflation outlook is sensitive to several factors, like the pace at which slack is absorbed and the impact that slack has on wages and prices, than like development in commodity prices, and exchange rates.

3.1.3 Economic growth, GDP

The Gross Domestic Product (GDP) is the monetary expression of the total value of goods and services produced in a given area for a certain period of time, mostly per annum.

The relationship between GDP and the development of stock prices is positive; the stock markets outpace GDP growth by three to nine months. The annual growth rate in Gross Domestic Product measures the increase in value of the goods and services produced by an economy over the period of a year. Therefore, unlike the commonly used quarterly GDP growth rate, the annual GDP growth rate takes into account a full year of economic activity, thus avoiding the need to make any type of seasonal adjustment. Graph. 3.4 shows GDP and its forecast created by MPC.

Graph. 3.4 Development of GDP



Source: Bank of England, Inflation Report 2014

Output is growing as the fastest rate since year 2007 and new jobs position are being created. The UK economy grew by 1.9% in 2013, the strongest annual growth rate for six years. Since 2008 UK was in a recession according ONS. Than was two years in a negative growth (there was different 7,2% from peak to trough). There we a new parliamentary election after that. A new government has made deep spending cuts. Within three years more than a million people lost their job as businesses (shops to manufactures and banks) either closed or lay off staff. Due to automatic stabiliser governmental spending increased. In year

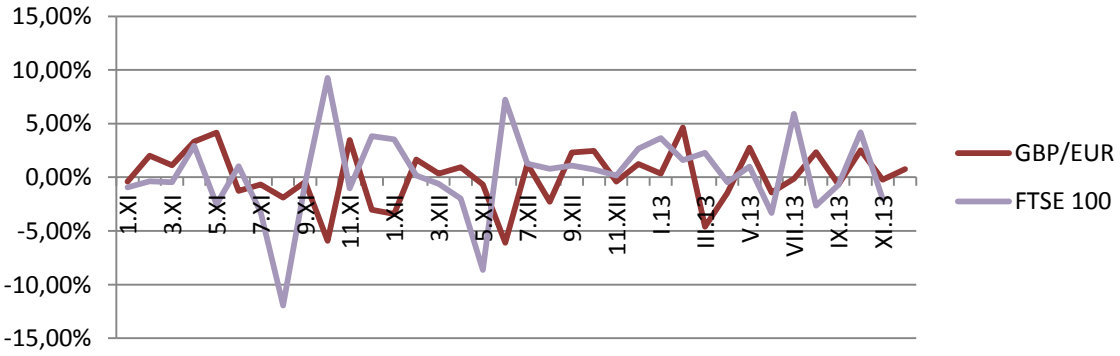
2012 was thought to have entered a double-dip recession (recession of two posted consecutive negative quarters of growth), but in the end it was not as was expected – the second quarter was stagnated with 0% growth according ONS and technically did not fit the criteria of two consecutive quarters of negative growth for a recession. With very high unemployment rate, the Committee has reviewed the current and prospective degree of spare capacity in the economy. After four quarters GDP increased in 2013. In Inflation report 2014 is a future view for next four quarters with GDP growth, assuming that Bank Rate follows a path implied by market interest rates and stock of purchased assets stays at the same level. The recovery is projected to a gradual revival in productivity underpins and light growth of wages.

Graph. 3.4 is based on the similar principles as the Graph. 3.3. The darker green place indicates 30% probability of future GDP development.

3.1.4 Exchange rates

Exchange rates are another indicator may affect the share price. As it is mentioned in chapter 2.1.1 there should be no correlation between exchange rate movements and stock markets. There are demonstrated movements of GBP/EUR and index FTSE 100 in Graph 3.5. The dependence of these two variables is visible in few periods in a monitored time.

Graph. 3.5 Development of exchange rate and market index



Source: author, on base of http://www.xe.com/currencycharts/?from=EUR&to=USD&view=5Y

By long – term view the GBP/EUR movements can be considered as a relatively stable. There is no bigger deviation than 5% in monitored period. Index FTSE 100 has the greater volatility. It may seem movements of GBP/EUR are leading indicator of FTSE 100 but not every time and that why in making predictions investors should not rely on this indicator.

General view on macroeconomic situation in UK

British economics seem to be very optimistic for the following years. Year 2013 is considered as a very successful one. Low level of inflation is still expected in a future and it should be around 2% which matches with the target. GDP is expected to continue in growth trend, for next year it should be 2-3% with contribution of increasing dynamic in manufacturing, construction industry. This may occur by decreasing of unemployment rate. British pound will strengthen against the USD and EUR. This is a change for export increasing thought the united European markets. All depends on the stability of bank and finance sector.

3.2 Industry analysis

Industry analysis is focused on the analyzing the industry in which the company is. Business of the company TalkTalk Telecom group, PLC by NACE code is "61900 – Other telecommunications activities."

In this chapter are studied facts, like industry live cycle, business-cycle sensitivities, structure of market, and governmental influences, which may cause influence on company's sales and profits.

3.2.1 Industry live cycle

Telecom industry is being in growth stage. Telecom services are much desired at this time and an internet is the highest growth potential. Demand is increasing and telecom companies invents new "packages" of services included fixed line, high speed internet and pay TV services for very interesting prices. It brings new customers. European Union helps new companies to enter the market via new EU regulatory framework for electronic communications. There is a high number of competitors at a time and it is expected a growth of whole telecom industry.

In the telecommunications sector the Communications Act abolished the need for telecommunications operations to hold a licence in order to provide telecommunications networks and services (except of mobile operators). Instead of this licence, there was created over 20 general conditions which detail the run of rules, like interconnection standards, number portability, deployment of telephone numbers, access to emergency services and many others.

3.2.2 Business-Cycle Sensitivities

Telecom industry is characterized as a less sensitive on a business-cycle. So it can be consider as a business-cycle neutral company. Their services are for the most people very necessary at this time and sales of telecom companies are growing for many years despite the decrease in British economics.

Tab. 3.1 Development of telecom industry revenues and GDP

Development of revenues and GDP (in £mil.)	2008	2009	2010	2011	2012	2013
Revenues	11 000 000	11 100 000	11 000 000	11 700 000	12 200 000	12 300 000
Revenues growth	-	0,91%	-0,90%	6,36%	4,27%	0,82%
GDP	1 258 654	1 296 324	1 406 671	1 486 071	1 521 163	1 627 644
GDP growth	-	2,91%	7,84%	5,34%	2,31%	6,54%

Source: author, data on base of Ofcom, Communications Market Report, 2013
and http://www.tradingeconomics.com/united-kingdom/gdp-growth-annual

Revenues of British telecom industry have growing trend. In 2010 was low decrease in total revenues. In 2012 analogue television broadcast ceased that occurs by increasing revenues in previous years as well as in the 2013. British economics performed falls after 2010. GDP development is described in chapter 3.1.3 Economic growth, GDP.

3.2.3 Structure of market

Structure of the telecom market can be characterized as a mixture of oligopoly and monopolistic competition. There are four key players in the broadband and TV market. The largest broadband service provider is BT Retail. The second one is BSkyB, TalkTalk is on the third position and the fourth one is Virgin media. BT Retail and Virgin Media are focused on speed and profitability of broadband connection. BSkyB is focused on cross selling broadband and voice to its pay television base and they are providing discounts to customers who using all three their products. BT Retail is the biggest competitor of BskyB in pay TV content rights, especially sport channels. TalkTalk is the leader in providing best value, reliable voice and broadband and TV service. Their position in mobile bases is growing too.

So, the British telecom industry can be characterized as a mixture of monopolistic competition and oligopoly. Due to the above mentioned companies are huge requirements on high capital of firm may enter this industry.

3.2.4 Governmental regulations

By 1998, telecommunications were, in principle, fully liberalised across the EU leading to considerable reductions in some prices; for those member states joining the EU in 2004 and 2007, the liberalisation process was completed at a later date.

UK telecommunication operator must operate within the legislative framework set by the Communications Act 2003. This Act harmonise communications regulation across the European Union. There is abolished the need for telecommunications operations to hold a licence in order to provide telecommunications networks and services (except of mobile operators). Instead of this licence, there was created over 20 general conditions which detail the run of rules, like interconnection standards, number portability, deployment of telephone numbers, access to emergency services and many others. In 2003 was created the Office of Communications (**Ofcom**) as a converged regulator replacing the previous ones until then. Ofcom regulates the commercial behaviour of dominant telecommunications operators who may have a potentially harmful influence on competition and customers. Ofcom regulates the TV and radio sectors, fixed line telecoms, mobiles, postal serviced and the airwaves over which wireless devices operate. Ofcom has a statutory duty to take into account in its decisions the views and interests of those who live in different parts of the UK. At the present time, Ofcom has more than 800 staff and annual budget of £130 million. Legal influences exist in form of deregulation.

Digital Economy Act was enacted in 2010 and it requires Internet service Providers to sent notifications to customers whose connections have been identified as being used for illegal file sharing. An act includes reserve powers to require disconnection of these customers. In parallel the Government consider a requirement to block certain websites that promote illegal file sharing, if the scheme should be voluntary or compulsory.

Another field of control at the present time is the question of paternal control and policy for protecting children online.

4 Company analysis and stock valuation

This is the main chapter of fundamental analysis. It is devoted to characteristics of TalkTalk, PLC and its corporate environment, financial analysis, estimating of the intrinsic value of share, and investment recommendation.

4.1 Characteristics of TalkTalk Telecom Group PLC

TalkTalk is strongly positioned broadband and voice provider in the UK market. TalkTalk residential packages offer broadband, phone, television and mobile services with the ability to add on extra services to suit the individual customer's needs. They offer three customer proposition, Simply Broadband, TalkTalk Essentials TV, and TalkTalk Plus TV.

- "Simply Broadband" offers totally unlimited broadband without inclusive landline calls at a market leading rate.
- "TalkTalk Essentials" is a package of a great value broadband, television and prone services.
- "TalkTalk Plus TV" delivers high-performance broadband, phone and television for customers who need unlimited package, super-fast broadband and great value.

At the present time TalkTalk employs over 2 515 employees. In February 2011 they have rebranded Opal business to business operation as TalkTalk Business to benefit from the strength of the TalkTalk brand. This business is a long-established supplier of voice and data services to the small and medium sized enterprise market using extensive low cost network infrastructure to deliver a wide range of proposition to over 180 000 customers and 350 partners. TalkTalk Business operates out of 5 locations in the UK (head office in Warrington, others in Milton Keynes, London, Stoke Mandeville and Gateshead).

TalkTalk have installed own equipment in more than 2,717 of the UK's local telephone exchanges, which serve around 95% of the country's households. These exchanges are connected via own high speed, high capacity all IP national network. Because of this investment TalkTalk enables to take control of the telephone line from the exchange to the customers' premises (on terms established by the telecoms regulator Ofcom), and to manage all of the voice and broadband services they provide over this line.

4.1.1 History of TalkTalk, PLC

TalkTalk started as a part of The Carphone Warehouse Group PLC and in less than 10 years has become one of the UK's leading telecoms companies.

In 2002 TalkTalk's venture into the fixed line telecoms market began, when Carphone Warehouse acquired Opal Telecom PLC, a fixed line, voice telecommunications network provider. In 2003 Ofcom began to regulate the UK telecoms industry (after the passing of the Communications Act 2003), and changed the Carrier Pre-Select ("CPS") market, which gave customers the freedom to easily switch fixed line providers. In 2004 TalkTalk started offering free calls between TalkTalk customers. Next year local loop unbundling was encouraged by Ofcom. This enables fair competition, price flexibility for customers and more innovation in products and services from new telecoms entrants. The relaxation of barriers to entry enabled to TalkTalk to be the pioneers of free broadband. Their customers were migrated to their own network via its own equipment through the changes. The customers' base has started to grow.

In 2007 TalkTalk bought AOL's UK Broadband business. Next year TalkTalk bought Tiscali's UK operations, bringing with it its portal and TV services and helping to make us the biggest provider of residential broadband to over 4 million UK homes. In 2009 TalkTalk sponsored The X Factor, great entertainment show for the first time.

TalkTalk demerged from The Carphone Warehouse in 2010 and became an independent company. In 2011 Opal rebranded TalkTalk Business. In this year TalkTalk launched Home Safe™, a parental control product for free to all its customers.

In the beginning of 2012 company launched You View. This new product of TalkTalk is offering to customers a flexible and great value pay TV service. It becomes quickly British fastest growing TV service. Another new product in this year was market-leading SIM only plans to have Smartphone from £5 a month and flagship handsets at competitive rates with no upfront cost.

4.1.2 Company details

The company Carphone Warehouse Group was incorporated in the United Kingdom under the Companies Act 2006 on 15 December 2009. TalkTalk Group PLC has demerged on 26 March 2010. The shares were separately listed on the London Stock Exchange. TalkTalk got an admission to trading 29 March 2010. Residence of TalkTalk is 11 Evesham Street, London, SW11 4AR, United Kingdom. There is main shares information below.

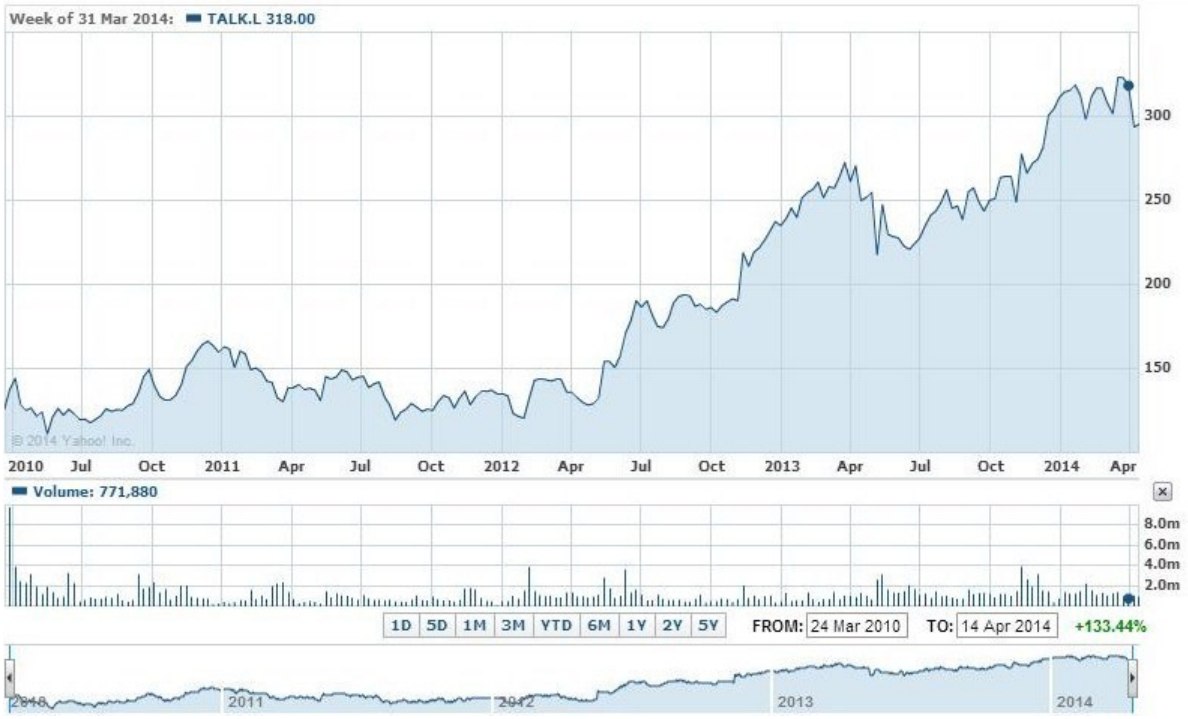
Tab. 4.1 Main shares information

Name	**TalkTalk Telecom Group**
Epic	**TALK**
ISIN	GB00B4YCDF59
Index	FTSE 250
Sector	Fixed Line Telecommunications
Currency	UK Pounds
Share price	293,40p
Shares issued	954,97 m
Segment	STMM
MiFID	Regulated Market
SEDOL	B4YCDF5

Source: author

Shares of TalkTalk Telecom Group PLC have been trading in a regulated market on London stock exchange. During that time have evolved and share price has increased more than twice. TalkTalk is part of The FTSE 250 index. Development of market prices of shares is displayed in Graph. 4.1.

Graph. 4.1 Market price of shares TalkTalk 24 March 2010 – 14 April 2014



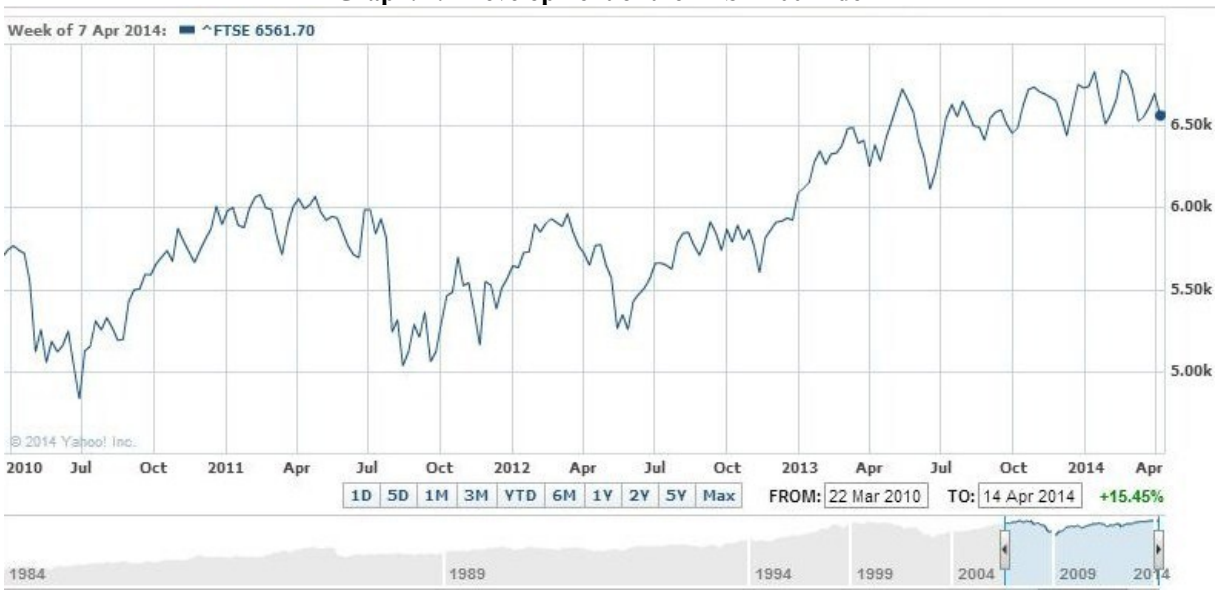
Source: https://uk.finance.yahoo.com/echarts?s=TALK.L

Market price of TalkTalk shares has growing trend. Company started trading on 24 March 2010 with value of 126,50p and for four years of trading the value has more than doubled and at the present time is above 300p. TalkTalk shares held more or less the same market value and the development was flat in 2010 to 2012. There was a big jump in May 2012 and shares put in a strong performance.

The FTSE 100 Index comprises the 100 most highly capitalised blue chips companies. It represents more than 80% of the UK market. The FTSE 100 hit the peak 6930 in the end of year 1999 during the dotcom boom. It finished in 2013 at 6740 and now is certainly floating around 6700. Many analytics believe it will pass more than 7000 barrier in year 2014 and 7500 by 2015. In past 12 month the FTSE 100 has risen strongly as the UK economic recovery has accelerate well ahead the expectations.

TalkTalk shares have higher volatility than the FTSE 100, but the trend is very similar. Development of the FTSE 100 Index is shown in Graph for comparable time period, namely 22 May 2010 to 14 April 2014.

Graph. 4.2 Development of the FTSE 100 Index



Source: https://uk.finance.yahoo.com/echarts?s=TALK.L

4.1.3 Structure of ownership

The Board has ten members. They have reserved certain matters, and delegated others, to the Group's Executive Committee, which comprises Dido Harding (Chief Executive Officer), Amy Stirling (Chief Financial Officer), David Goldie (Group Commercial Director) and other senior employees drawn from across the Group. Reserved matters include approving the Group's strategy, annual budgets and other longer term planning. Non-Executive Directors has six members. All of them are members of the Board.

The Company Secretary ensures that the Board is made aware of new laws, regulations and other information appropriate to the Group to ensure that all Directors continually update their skills, knowledge and familiarity of the Group in order to fulfil their

roles. Each Director has access to the advice and services of the Company Secretary and has the ability to take independent external advice if required.

There is Committee for Audit, Remuneration and Nomination, which are as required by the Code. Another is Regulatory Compliance that ensures the compliance of the Group within the regulatory environment and Television Committee that is focused on the television offering. Audit Committee is responsible for the development, implementation, and monitoring of the company's policy on external audit. Tab. 4.3 shows structure of The Board of Directors and Advisors in TalkTalk.

Tab. 4.2 Board of Directors and Advisors

Chairman:		
Sir Charles Dunstone		
since 2010		
Executives:		
Dido Harding	Amy Stirling	David Goldie
since 2010	since 2010	Since 2010
Non-executives:		
John Gildersleeve	John Allwood	Brent Hoberman
since 2010	since 2010	Since 2010
Ian West	Sir Howard Stirling	James Powell
since 2011	since2012	since 2012
Company Secretary:		
Tim Morris		
Advisors:		
Royal Bank of Scotland Group PLC		
Credit Suisse (Europe) Limited		
Barclays Capital		
Registrars:		
Equiniti Limited		
Auditor:		
Deloitte LLP		

Source: author

Tab. 4.3 shows Directors interest in TalkTalk ordinary shares 0,1p to the date 31 March 2013. The main owner is Sir Charles Dunstore who has one third of total company's assets. Sir Howard Stirling and James Powell have no assets.

Tab. 4.3 Directors interests in shares

Name	Ordinary shares of 0,1p
Sir Charles Dunstone	294 059 396
Dido Harding	2 149 688
Amy Stirling	2 000 733
David Goldie	2 409 506
John Gildersleeve	246 000
John Allwood	10 000
Brent Hoberman	12 882
Ian West	346 023
Sir Howard Stirling	-
James Powell	-
Total	**301 234 228**

Source: author

Tab. 4.4 captures the significant shareholders in TalkTalk. The main shareholder of company is Sir Charles Dunstone as is mentioned above. Second one is David Ross with 12% of share capital. Other significant shareholders have 3-7% of share capital. There are 66% of significant shareholders. The rest, 34% is intended for small investors with low stakes in the company.

Tab. 4.4 Significant shareholders of TalkTalk

Significant shareholders	Ordinary shares of 0,1p	Percentage of share capital
Sir Charles Dunstone	294 059 396	32%
David Ross	116 160 538	12%
Capital Research Global Investors	62 933 100	7%
Jupiter Asset Management Limited	42 764 602	5%
Group ESOT	38 728 388	4%
Schroder Investment Management Ltd (SIM)	29 369 033	3%
Invesco Asset Management Limited	28 158 815	3%
Total	**612 173 872**	**66%**

Source: author

4.1.4 Market position

TalkTalk Telecom Group offers voice and data services to customers and small to medium size enterprises in the UK and in its own words, the company seeks to provide "the best value to homes and businesses by offering competitive pricing and innovative products backed up by good service."[1]

TalkTalk is strongly positioned on the broadband market. The size of relevant market determinates by all communications services and providers in UK, including mobile services and operators, internet providers, broadband TV, radio, audio, and Royal Mail. According

[1] TalkTalk Telecom Group PLC, Annual Report 2013

Ofcom[2], the market regulator, the size of relevant market is growing day by day and total revenues are shown in Tab. 4.6.

Tab. 4.5 Percentage TalkTalk on the relevant market

Size of market	unit	2008	2009	2010	2011	2012	2013
Size of relevant market	£ mld.	11 000	11 100	11 000	11 700	12 200	12 300
Growth in relevant market	%	-	0,91	-0,90	6,36	4,27	0,82
Size of TalkTalk company	£ mil.	1 424	1 385	1 686	1 765	1 687	1 670
Growth in TalkTalk company	%	-	-2,74	21,73	4,69	-4,42	-1,01
Percentage of market	%	0,013	0,012	0,015	0,015	0,014	0,014

Source: author, on base of Ofcom, Communications Report 2013 and TalkTalk's statements

In 2008 the total size of UK communication revenues was £11 000 mld. and till 2010 was relatively stable. In 2011 the total market revenues has risen up more than 6%. It may be caused by growing number of competitor on a market as well as increasing sales of the mobile services providers. In 2012 Telecom revenues fell by 0,7bn, retail fixed broadband revenues increased in 0,3bn. Mobile voice and data service revenues rise 0,2bn, corporate data service revenues rice of 0,1bn and retail fixed calls revenues fall in 0,3bn. UK television industry generated 0,8% increase comparing previous year 2011.

TalkTalk is trying to maintain the same market share for a monitored period. The strongest years 2010 and 2011 was keeping 0,015% of the telecom market. The strongest growth of 21,73% in TalkTalk's revenues is recorded in 2010 after a demerger, when the size of revenues has steeply increased. This is a result of a new management teem. Last two years, 2012 and 2013 TalkTalk has 0,014% of the relevant market.

TalkTalk´s market position is better captured in Graph 4.3, where it is shown TV industry revenues separated. TalkTalk is a part of Subscription revenue. It includes revenues of BSkyB, Virgin Media, TalkTalk TV, BT Vision, Setanta Sports, ESPN and Top Up TV.

[2] Ofcom, Communications Market Report 2013

Graph. 4.3 Total TV industry revenue 2007 - 2012

Source: Ofcom, Communications Market Report 2013

There is very optimistic growth of total TV industry revenue in monitored period.

4.1.5 Employees

At the present time TalkTalk Telecom Group employee more than 2500 employees. They are doing their best to make a great employees environment. The project "A Brighter Place for Everyone" was created to employees feel included, respected and enjoys their job.

TalkTalk is a part of National Employee Forum and five Local Employee Forums that provide an essential communication and consultation on business change matters such as legislative changes, employment levels and people development.

Employee benefits are provided to employees as well, including Save-As-You-Earn schemes in UK to enable employees to participate in the performance of the company. TalkTalk is offering to employees' free broadband and an equivalent benefit. In 2013 they got a choice of tree home phone, fibre and TV and half-price mobile packages. Employees' benefits are continually improving.

Another project, Give Something Back is the opportunity for staff to take a paid day of leave to take part in volunteering or fundraising activities in local communities.

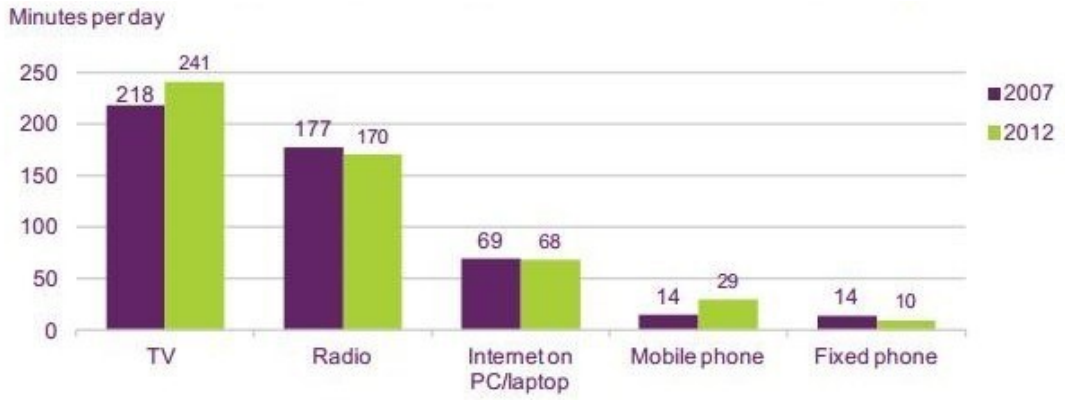
A new tool to support employee development is TalkTalkU, new online hub for all learning and development and includes extensive face-to-face and eLearning options. TalkTalk has delivered interactive tools to enable employees to chart career progression routes through the company.

4.1.6 Customers

TalkTalk is focused on British telecom market, especially value-seeking customers. There is a potentially large base of customers, around eight millions. The most of current customers are families with long term contracts.

Based on the Ofcom research from the year 2013 there is a growing trend in using telecommunication services. Graph 4.4 shows spent minutes per day in comparison year 2007 and 2012.

Graph. 4.4 Average time spent using communications service per day



Source: Ofcom, Communications Market Report 2013

As is visible from the graph the highest growth is noted in spending time with TV and mobile phones. Radio and fixed phones reported decrease in last six years.

Since November 2010 TalkTalk get into a trouble with customers and during a one and half year they have lost more than 170 000 customers. In spite of it, they reached stable revenues at £422m. The problem was caused by wrong billing thousands of Tiscali customers for services they did not received. It was a result of rapid merger of broadband companies including Tiscali, Pipex and Carphone Warehouse. TalkTalk has been struggling to integrate its billing platform.

TalkTalk is taking care about its customers to their full satisfaction. They can use customer service via phone or email and all problems will be sorting it out. All comments of TalkTalk's service may be discussed using online feedback.

Introduction of new investment in YouView brought many new broadband customers. 20% of current TV customers have bought one ore more paid-for boots oriented on family and kids' entertainment packages and popular films.

In a last period of a time, TalkTalk work on improving speed of internet. Customers can make a speed test by themselves or can ask for assistance, all free of charge. There is an online self-service as well to fasten business.

TalkTalk expects to have nearly a million customers by year-end in 2014.

4.1.7 Strategy and dividend policy

TalkTalk Telecom Group PLC started paying dividends in 2010. Since that time, the value of dividend has increased. Dividends are on an interim and annual basis. New dividend policy is to return to shareholders 50% of the basic Headline earning per share in the form of ordinary dividends. Shares of "old" The Carphone Warehouse Group PLC were for UK capital gains tax purposes allocated to 63,9% to TalkTalk and 36,10% to CPW. Tab. 4.X shows TalkTalk dividends in pence per share.

Tab. 4.6 Dividends of TalkTalk Telecom Group, PLC

Ex-Div. Date	Pay Date	Type	Dividend	Currency	Total
24.11.2010	17.12.2010	H1 dividend (interim)	1,70	GBX	
6.7.2011	5.8.2011	H2 dividend (final)	3,90	GBX	5,6
23.11.2011	16.12.2011	H1 dividend (interim)	2,60	GBX	
4.7.2012	3.8.2012	H2 dividend (final)	6,40	GBX	9
21.11.2012	14.12.2012	H1 dividend (interim)	3,45	GBX	
3.7.2013	2.8.2013	H2 dividend (final)	6,95	GBX	10,4
20.11.2013	13.12.2013	H1 dividend (interim)	4,00	GBX	

Source: Own work, on base of Annual report 2013 of TalkTalk Telecom Group, PLC

Graph. 4.5 Evolution of dividend per share

Source: author

In 2011 the total paid dividends were £15 mil. It comprised the interim dividend of 1,7p per share which was paid on 17 December 2010. The Board has declared a final dividend of 3,9p per share which was paid, subject to shareholder approval on 5 August 2011and for

shareholders on the register at 8 July 2011. The total declared dividend for the year was 5,6 pence.

In 2012 the total paid dividends were £58 mil. Comprised the final dividend for 2011 of 3,9p per share and the interim dividend for 2012 of 2,6 pence per share. The Board has declared a final dividend of 6,4 pence per share, which was paid, subject to shareholder approval at the 27 July 2012 for shareholders on the register at 6 July 2012. The total declared dividend for the year was 9 pence.

In 2013 the total paid dividends were £87 mil. Dividends were comprised the final dividend for 2012 of 6,4 pence and the interim dividend of 3,45 pence. (That reflects 15% growth). The Board has declared a final dividend of 6,95p per share which was paid on 2 August 2013, subject to shareholder approval on 24 July 2013 for shareholders on the register at 5 July 2013. The total declared dividend for the year was 10,4 pence.

The Board committed that during 2013 and 2014 when the business will be investing in growing the TV base, dividend will grow by a minimum of 15%.

4.1.8 TalkTalk and the future

TalkTalk Telecom Group PLC operates on the telecom market not even ten years. They have built a strong position on the market for such a short period and in the present time TalkTalk is one of the leading companies in their fields. Telecommunications are very popular, potential, desirable, and still developing services. Most of the customers exploit great value packages because time spending with TV, internet or phone has growing trend. TalkTalk has invested into new product like YouView and Mobile services that attracted more customers. Sales are expected to growth and so TalkTalk belongs to the fastest growing TV services in UK. It is related with optimistic development of British economics. Dividends are growing every year and this planned trend is attractive for many investors.

4.2 Financial analysis

Financial analysis is an essential part of financial management. It helps to analyze a historical data of a company. Financial analysis of TalkTalk, PLC is based on financial statements, namely balance sheet and income statement, for period 2008 to 2013. Within financial analysis is done analyse of Profitability ratios, Activity ratios, Liquidity ratios, Solvency ratios, Capital market ratios, and Altman Z-score.

4.2.1 Profitability ratios

Profitability is one of the most common groups of ratios. Generally, it is definite as a ratio of the profit (revenues) to the capital. According a used type of capital can be distinguished following ratios.

Tab. 4.7 Profitability ratios

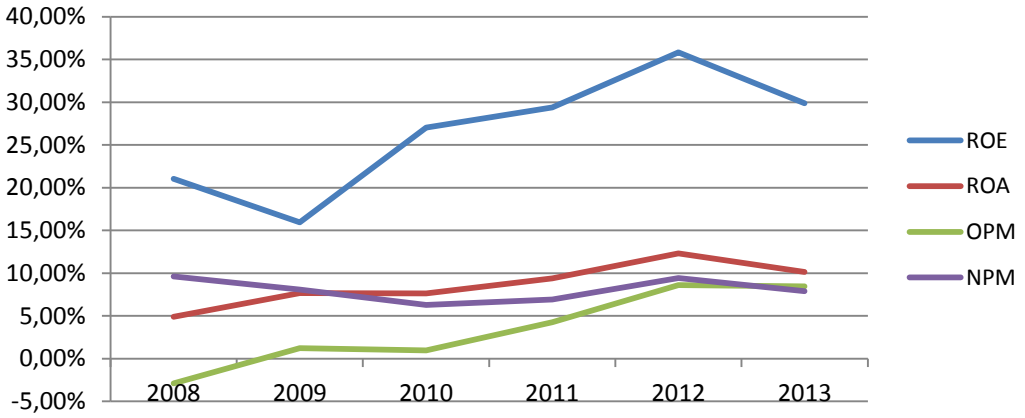
Profitability Ratio	Equation	2008	2009	2010	2011	2012	2013
ROE	(2.1)	21,04%	15,95%	27,04%	29,40%	35,81%	29,86%
ROA	(2.2)	4,89%	7,65%	7,63%	9,40%	12,30%	10,14%
OPM	(2.3)	-2,88%	1,23%	0,95%	4,25%	8,60%	8,44%
NPM	(2.4)	9,62%	8,09%	6,29%	6,91%	9,43%	7,90%

Source: author

Optimal value does not exist for profitability ratio, but in general the higher the ratio is, the better economic situation of company is. From long – term view there is a growing trend that is desirable. In 2009 there was a fall or *ROE* from 21,04% on 15,95%. Whole telecom market is facing the problems that time. In 2009 TalkTalk bought Tiscali's UK operation. This investment brought more customers, improved the company position and as a result growing net income. Return on Equity *ROE* was increasing till 2012 where started to fall. In this year the value of net income was £159 mil, which is very high comparing with the other years. Revenues were £1687 mil., and cost of sales were only £803 mil (in 2011 were £877 mil, that means a big saving). In 2013 were incomes of TalkTalk very similar with previous year, but the *ROE* is lower due to change in taxes. Return on assets *ROA* does not performance big jumps in development as *ROE*. *ROA* becomes shows a stable growth trend since monitored year 2008 till 2012 because of growing net income. There is a low fall in 2013 caused by fall in net income from £159 mil to £132 mil. Operate profit margin, *OPM* is showing stable growing trend. That is very good for company because it signifies an operating efficiency. Low net profit margin, *NPM* expresses poor management of company. In 2010 TalkTalk demerged from The Carphone Warehouse and become an independent company.

NPM has started to grow since that time and has got out of the negative values. Graph 4.6 captures the development of individual profitability ratios is shown below.

Graph. 4.6 Profitability ratios



Source: author

4.2.2 Activity ratios

An effective management of company represents activity ratios. There are two groups of indicators. The first one is number of rotation in individual components, namely total assets turnover (TAT), inventory turnover (IT), receivables turnover (RT), and short – term liabilities turnover (LT).

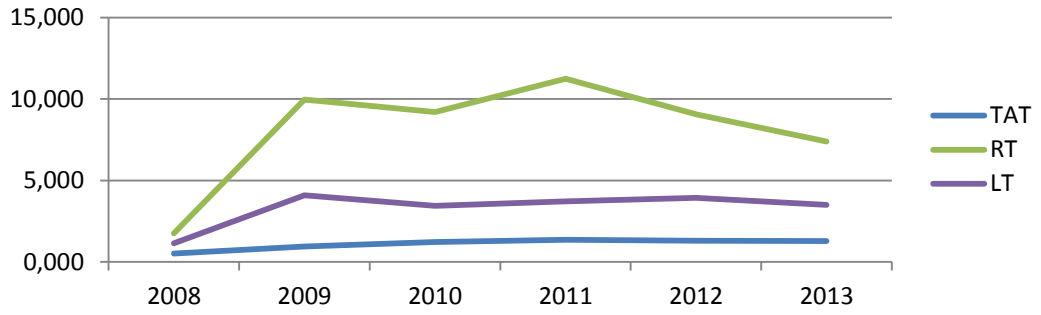
Tab. 4.8 Activity ratios, turnovers

Activity Ratio	Equation	2008	2009	2010	2011	2012	2013
TAT	(2.5)	0,51	0,95	1,21	1,36	1,30	1,28
IT	(2.7)	6,72	1385,00	843,00	588,33	562,33	72,61
RT	(2.9)	1,75	9,96	9,21	11,24	9,07	7,39
LT	(2.11)	1,13	4,10	3,44	3,72	3,93	3,50

Source: author

Total asset turnover performances a stable and slightly increasing trend. It shows how many times the assets turn in revenues. The value of *TAT* should not be lower than one, than the turnover takes more than one year. In first two monitoring years the value was bellow this limit. TalkTalk probably did not use their property effectively. TAT has improved after mentioned demerger. Inventory turnover achieved very high values because TalkTalk company does not own inventories. Value of RT has rapidly increased in 2009. In this year company cut their loans more than on half. Indicator *LT* has stable trend as is shown in Graf 4.7 below.

Graph. 4.7 Activity ratios, turnovers



Source: author

The second group is the turnover rate, that express number of turns per a year. In this group of indicators there is Turnover period of assets (TPA), Turnover period of inventories (TPI), Turnover period of receivables (TPR), and Turnover period of short – term liabilities (TPL). As it is shown is Tab. 4.9.

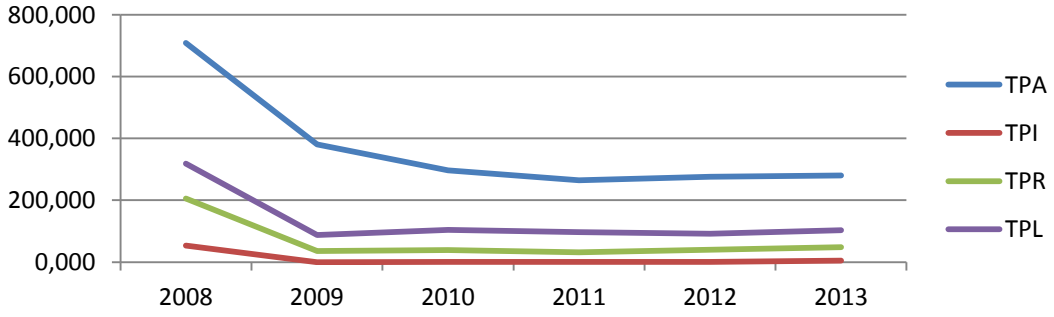
Tab. 4.9 Activity ratios, turnover rates

Activity Ratio	Equation	2008	2009	2010	2011	2012	2013
TPA	(2.6)	708,88	380,79	296,80	264,75	275,92	280,67
TPI	(2.8)	53,60	0,26	0,43	0,61	0,64	4,96
TPR	(2.10)	205,53	36,13	39,07	32,02	39,69	48,72
TPL	(2.12)	318,03	87,86	104,63	96,68	91,55	102,83

Source: author

Turnover period of assets expressed how long it takes to turn the total assets relative to revenues. The shorter time is better. En extremely high value is in 2008, when the value of asset was high (especially goodwill, property and receivables). The other years were stable, around 300 days. Turnover period of inventories is very low, as shows Tabs above; Telecom Company does not have a lot of inventories and the time of inventories in the stock is about one month. Turnover period of receivables is lower than turnover period of short – term liabilities in every monitored year. This is desirable because the company is able to meet its obligations on time.

Graph. 4.8 Activity ratios, turnover rates



Source: author

Liquidity ratios

Liquidity ratios are used to analyze the solvency of company. Liquidity is the ability of the company to cover their obligations. It depends how much is the company able to cash their receivables, how fast to sell their inventories, etc. There is a Tab.4.10 below showing evolution of Current ratio, Quick ratio, and Cash ratio.

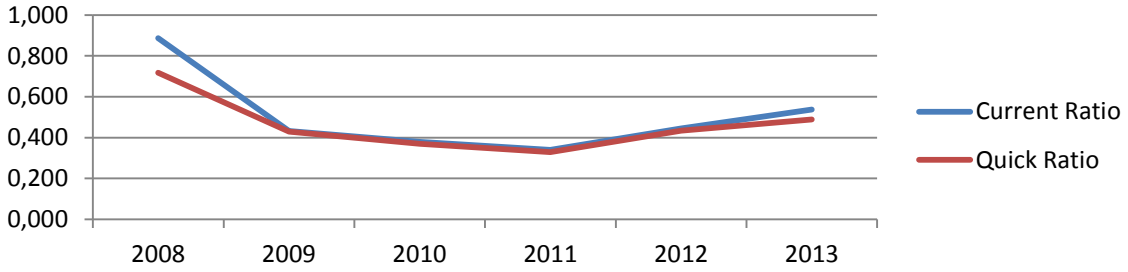
Tab. 4.10 Liquidity ratios

Liquidity Ratio	Equation	2008	2009	2010	2011	2012	2013
Current Ratio	(2.13)	0,886	0,432	0,380	0,340	0,445	0,537
Quick Ratio	(2.14)	0,718	0,429	0,369	0,329	0,434	0,488
Cash Ratio	(2.15)	0,070	0,018	0,002	0,002	0,005	0,015

Source: author

Current Ratio report very low values. The value should be around 1,5. TalkTalk does not reach this value at all. Company has problem with liquidity based on these facts. Quick Ratio shows very close values because company have not a lot of inventories. Both ratios are growing since 2011. The solvency situation is improving. Development of Current and Quick ratio is displayed in Graf 4.9.

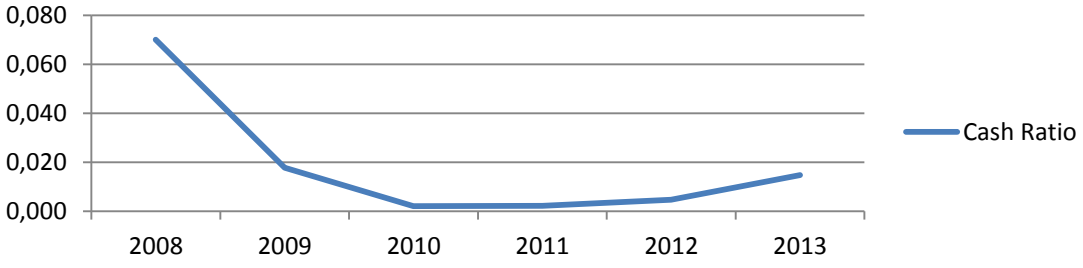
Graph. 4.9 Liquidity ratios



Source: author

Value of cash ratio is extremely low. In 2009 – 2011 was very close to zero. There has been a slight improvement since 2012 but the values are still critical. TalkTalk does not hold cash and cash equipment an in case of random situation can get easily into the trouble.

Graph. 4.10Cash ratio



Source: author

Net working capital is added to the liquidity indicators. The development is shown in Tab. 4.11. As is visible, in all monitored periods there are negative values.

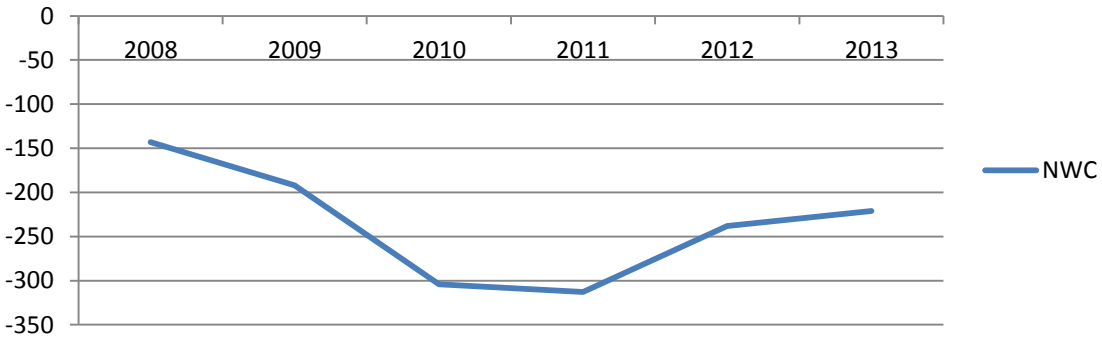
Tab. 4.11 Net working capital

	Equation	2008	2009	2010	2011	2012	2013
NWC	(2.16)	-143	-192	-304	-313	-238	-221

Source: author

Trend showing the development of net working capital is negative because of decrease in cost base and continued unwinding. This situation does not mean always bad situation in company. In some specific companies as TalkTalk customers pay upfront and so then the company use the cash generated to pay off their Accounts Payable rather than keeping a large cash balance on-hand. This is a sign of business efficiency.

Graph. 4.11 Net working capital



Source: author

4.2.3 Solvency ratios

Solvency ratios measure a company's ability to meet its long-term debt and generate the cash flow. Within analysis of solvency ratios shown in Tab. 4.12, are monitored ratios Debts to Asset Ratio, Equity Ratio, Equity Multiplier, Debt to Equity Ratio, and Interest Coverage Ratio.

Tab. 4.12 Solvency ratios

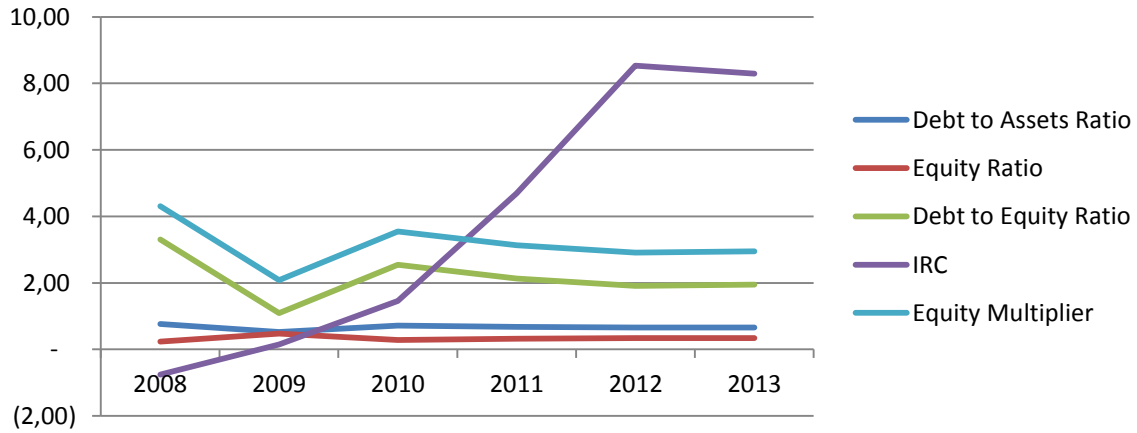
Solvency Ratio	Equation	2008	2009	2010	2011	2012	2013
Debt to Assets Ratio	(2.17)	0,77	0,52	0,72	0,68	0,66	0,66
Equity Ratio	(2.18)	0,23	0,48	0,28	0,32	0,34	0,34
Debt to Equity Ratio	(2.20)	3,31	1,09	2,55	2,13	1,91	1,95
IRC	(2.21)	- 0,76	0,15	1,45	4,69	8,53	8,29
Equity Multiplier	(2.19)	4,31	2,09	3,55	3,13	2,91	2,95

Source: author

Debt to assets ratio shows that in average 66% of assets are financed by the debt. It means that in year 2008 and 2010 company faced the higher risk, exactly 77% and 72%. For the company is desirable to have higher equity ratio. It indicates less risk and greater financial strength. In 2009 is the equity ratio 0,48. It is caused by the demerger of a company, which changed the value of equity. Recommended value of debt to equity ratio is 2. High debt to equity ratio 3,31 in 2008 and 2,55 in 2010 are worrisome because it indicates a precarious amount of leverage. In 2008 the value of total debt was too high. There was problem with current liabilities, especially trade and other receivables, where the value was £1087 mil., and it more than three times higher than next year. In 2010 was a massive subtraction from shareholders equity that has increased the debt to equity ratio. Interest rate coverage expresses how well company can meet its interest-payment obligations. In the first monitored year, 2008 the value was negative that is not good for company. After that, the ratio has started to grow. The best values are achieved in 2012 and 2013. In these years TalkTalk is able to meet its interest payment more than eight times over.

Equity multiplier, known as measure of financial leverage is relatively stable after demerger. The higher the equity multiplier, the higher is the financial leverage, which indicates that the company relies more on debt to finance its assets.

Graph. 4.12 Solveny ratios



Source: author

4.2.4 Capital market ratios

Capital market ratios are the most observed ratios. They are based on capital market data. Values are important as for investors as for the shareholders. There are three main ratios, earnings per share, P/E and dividend yield.

Tab. 4.13 Capital market ratios

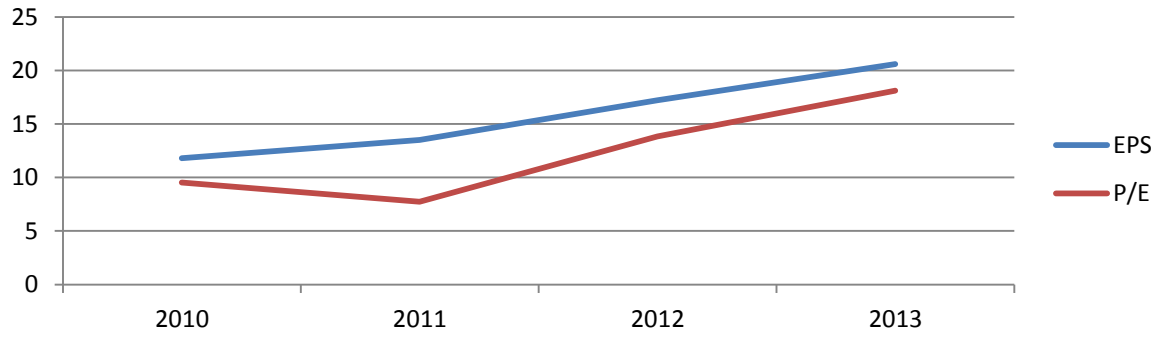
Capital Market Ratio	Equation	2010	2011	2012	2013
EPS	(2.21)	11,8	13,5	17,2	20,6
P/E	(2.22)	9,53	7,73	13,85	18,12
DY	(2.23)	2,77%	1,25%	2,78%	3,26%

Source: author

The higher the EPS figure, the better it is. The growing trend is showing an increase in earnings, strong financial position. According the evolution of EPS the TalkTalk is reliable company to invest money. Comparing EPS ratio and P/E ratio between companies they have more explanatory ability. Comparison is captured in Tab. 4.13.

The price to earning ratio, P/E is one of the most watched indicators. Investors prefer to buy shares with lower P/E ratio than shares with higher P/E because they are getting more earning for their money. So in 2013, the value of P/E is 18,12. That means investors are ready to pay 18,12 times earnings. In an efficient market the prices of shares should reflect a company's future value creation potential. Higher value can indicate higher future dividend, as well as higher P/E should reflect greater expected future, but from the other view it indicates, that share price is more expensive. Graf 4.13 captures the development of EPS and P/E ratio.

Graph. 4.13 Capital market ratios



Source: author

The follow Tab. 4.14 displays development of EPS and P/E ratios of two companies, BT Retail and BSkyB, which are operating in the same sector and also are the biggest competitors for TalkTalk Telecom Group PLC.

Tab. 4.14 Comparison of selected capital market ratios between competitive companies

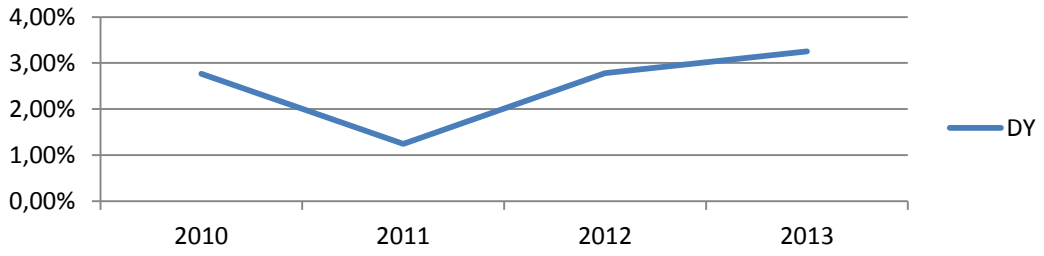
Ratio	Company	2010	2011	2012	2013
EPS	BT	17,30	21,00	25,80	26,70
	BSKYB	32,10	41,60	50,80	60,00
	TalkTalk	11,80	13,50	17,20	20,60
P/E	BT	7,16	8,84	8,78	10,41
	BSKYB	21,82	20,35	13,71	13,20
	TalkTalk	9,53	7,73	13,85	18,12

Source: London Stock Exchange

As it can be seen from the table, the highest values of EPS have British Sky Broadcasting Group PLC, BT Group, and than TalkTalk. Profits of these companies are higher than in TalkTalk. For example, BSkyB performs ten times higher net income and number of shares in issue is one and half times higher. It means that TalkTalk has a lot of shares in issue in ratio with net income. In an investor view shares of all three companies are interesting investments.

The development of Dividend yield, DY is shown in Graph 4.14. In 2010 and 2011 the company had a problem with net income. Although the revenues rose, the costs were higher, especially short term liabilities. It can be seen as a result after a demerger. TalkTalk started paying dividend in 2010.

Graph. 4.14 Dividend yield



Source: author

4.2.5 Altman Z score

Altman Z score is a quantitative method of determining a company's financial health based on balance sheet data. Resulting Z score is classified into zones of discriminations. Company is in a Safe zone if the value is more than 2,99. When the value is below 1,8 it can declare bankruptcy. Individual indicators and a result Z-Score is in Tab. 4.15. bellow.

Tab. 4.15 Altman Z-Score

Altman Z-Score	Equation	2008	2009	2010	2011	2012	2013
X1	(2.25)	-0,0510	-0,1311	-0,2187	-0,2411	-0,1841	-0,1697
X2	(2.26)	0,4968	0,9195	1,0324	1,3482	1,2599	1,2158
X3	(2.27)	-0,0146	0,0116	0,0115	0,0578	0,1121	0,1083
X4	(2.28)	0,3024	0,9201	0,3928	0,4700	0,5230	0,5140
X5	(2.29)	0,5078	0,9454	1,2129	1,3598	1,3047	1,2826
Z Score	**(2.24)**	**1,2753**	**2,6657**	**2,6695**	**3,4306**	**3,5315**	**3,4469**

Source: author

X1 is ratio of working capital to total assets. The value is negative in all monitored years. It is caused by negative NWC that is described in liquidity ratios. TalkTalk is does not hold a lot of cash equipment an in case of random situation can get easily into the trouble. X2 expresses the cumulative profitability of the company. As it is shown in Tab. 4.15 the ratio is stable with slow growth. Company should have problems in this area. X3 shows, how the company is productive in generating earnings, relative to its size. In last three years the ratio is growing that is desirable. Market value of equity is compared with book value of total liabilities in X4. Ratio X5 is showing growing trend of sales to assets. It expresses company uses its asset effectively.

Resulting Z score was very low in the 2008 and TalkTalk belong to the "Distress" zone. After that, the value started to grow. In 2009 and 2010 was the company in "Grey" zone. After the demerger has the result value improved and TalkTalk can be classified into the "Safe" zone.

4.2.6 SWOT analysis

Swot analysis is widely used analysis for identification of strengths, weaknesses, opportunities and threats of companies. Tab. 4.17 shows SWOT analysis of TalkTalk.

Tab. 4.16 SWOT analysis of TalkTalk Telecom Group PLC

Strengths	**Weaknesses**
- good value	- no inclusive calls with basic broadband
- strong position on the market	- service prices strongly affected by Ofcom
- reliable service	- price - oriented customers
- free homeSafe software	- poor customer service
- business option	
- actively participate in pricing consultations by Ofcom	
- executive management	
- dividend policy	
Opportunities	**Threats**
- positive economics development	- number of critical suppliers
- using new technologies	- changes in regulation can significally impact the performance
- wider range of specialists channels including foreign languages titles, education and entertainment	- failure to provide a stable and reliable service may cause customer chrun
- upgrade of YouView product	- increased competition in the UK broadband market
- customer benefits	
- Mobile offering	
- new investments	

Source: author

4.3 Stock valuation

This chapter is aimed to evaluate an intrinsic value of shares using fundamental analysis methods. By comparing with actual market price with calculated value is set an investment recommendation. An intrinsic value of shares TalkTalk Telecom Group, PLC is evaluated by two- stage dividend discount model, multiple models (P/E ratio, P/BV ratio, P/S ratio), balance models (book value), and historical models (model P/S, model P/D, and model P/BV).

Before using individual methods it is necessary to plan revenues for next years. Revenues forecast are based on historical data 2008 – 2013. In Tab. 4.17 is shown the

revenues development in TalkTalk. The revenue growth rate is calculated as a geometric average.

Tab. 4.17 Revenues development

Hist. revenues	2008	2009	2010	2011	2012	2013
Revenues	1424	1385	1686	1765	1687	1670
Growth	-	-2,74%	21,73%	4,69%	-4,42%	-1,01%
Geom. average	3,65%					

Source: author

In Tab. 4.18 are shown development of revenues in whole telecom industry for monitored years, its growth, and development GDP and its growth.

Tab. 4.18 Development of market revenues and GDP (£mld)

Development of revenues and GDP (in £mld.)	2008	2009	2010	2011	2012	2013
Revenues	11 000	11 100	11 000	11 700	12 200	12 300
Revenues growth	-	0,91%	-0,90%	6,36%	4,27%	0,82%
GDP	1 258 654	1296 324	1 406 671	1486 071	1521 163	1627 644
GDP growth	-	2,91%	7,84%	5,34%	2,31%	6,54%

Source: Source: author, on base of Annual report 2013 of TalkTalk Telecom Group, PLC
Ofcom, Communications Annual Report, 2013
http://www.tradingeconomics.com/united-kingdom/gdp-growth-annual

In Tab. 4.19 is made a forecast for year 2014, 2015 and 2016. Data are based on the previous Tabs.

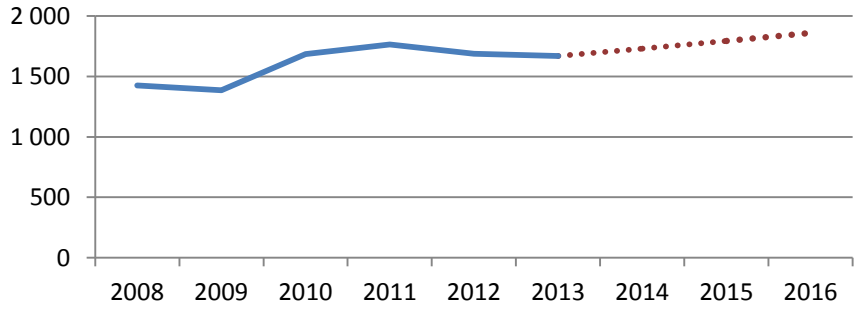
Tab. 4.19 Revenues forecast

Year	Size of relevant market	Growth in relevant market	Size of TalkTalk company	Growth in TalkTalk company	Market share
	(£ mil.)	(%)	(£ mil.)	(%)	(%)
2008	11 000 000	-	1 424	-	0,013%
2009	11 100 000	0,91%	1 385	-2,74%	0,012%
2010	11 000 000	-0,90%	1 686	21,73%	0,015%
2011	11 700 000	6,36%	1 765	4,69%	0,015%
2012	12 200 000	4,27%	1 687	-4,42%	0,014%
2013	12 300 000	0,82%	1 670	-1,01%	0,014%
2014	**12 582 039**	**2,29%**	**1 731**	**3,65%**	**0,014%**
2015	**12 870 545**	**2,29%**	**1 794**	**3,65%**	**0,014%**
2016	**13 165 667**	**2,29%**	**1 860**	**3,65%**	**0,014%**

Source: author

The revenue forecast is shown in Graph. 4.15.

Graph. 4.15 Prediction of revenues



Source: author

4.3.1 Dividend discount model

Two-stage dividend discount model was used to estimate an intrinsic value of TalkTalk Telecom Group PLC shares. First stage lasts three years, 2014 - 2016. The second stage is supposed to start at 2016 and it lasts to infinity. In the first step it is necessary to determinate dividend growth for first and second stage, g_1 and g_2. As a second step is calculation of required rate of return.

Dividend growth

Dividend growth for the first stage was calculated according Equation (2.78) and it equals 10,18%. Data were used from the balance sheet of TalkTalk. Below is shown substitution into the Equation.

$$g_1 = (1 - \frac{87}{132}) \cdot 29{,}86.$$

$$g_1 = 10{,}18\%.$$

After that, the dividend prediction was made pursuant the growth rate. In Tab. 4.20 are shown planned dividends for year 2014 – 2016.

Tab. 4.20 Prediction of dividends (£p) for next three years

Year	Final dividend per share
2011	5,60
2012	9,00
2013	10,40
2014	**11,46**
2015	**12,62**
2016	**13,81**

Source: author

Dividend growth for the second stage is based on many circumstances. First one, TalkTalk is planning to pay dividend in a future. In spite of very nice value of dividend

growth 10,18% in the first stage, the dividends in the second stage must be cut because the second stage is based on the assumption of infinity and such a big values cannot be guaranteed. The second fact is the long – term development of GDP in UK. Prediction according Central bank of England, the GDP may rice in UK. The long - term view according OECD[3] the global economy will growth by 3 percent annually, but the growth will be much stronger and much faster in emerging economies than the developed countries in OECD. GDP growing future is not as responsible in developed countries because of globalization and transformation sources into the developing countries. In 2060 India should become to the worlds giant.

Due to these facts, the dividend grow rate for the second stage is set on 2,5%.

Required Rate of Return

Required Rate of Return is one of the most necessary parameters when using models reflecting the time value of money. It helps to transform future cash flows on its present value with reflecting the reciprocated opportunities cost and inflation, level of risk and liquidity of valuated share. Model CAPM is used for evaluation, namely the Equation (2.82).

Value of F_R is free risk rate, always presented as a 10Y Government Bond. In thesis are used monthly data January 2013 – December 2013. F_R was set as a geometric average of these monthly data. The value of F_R is 1,803%.

Value of R_M expresses market rate of return produced by market index. R_M is set as an average rate of return of FTSE 100 for last three years; monthly data are calculated in Annex E. Value R_M is 15,01%.

Coefficient beta is the sensitivity rate of return of particular share on the rate of return of the market. Coefficient beta is calculated on linear regression base, using monthly data January 2011 – December 2013. Calculation is shown in Annex F. This resulting value β = 0,5 was compared with value 0,4671 set by experts[4] of TalkTalk. Even if the value calculated by linear regression has very low information capability (r square = 0,1082), the calculated β is very close to value set by experts, and therefore be calculated with this value.

[3] http://www.oecd.org/economy/outlook/lookingto2060.htm
[4] http//markets.ft.com

Summarized,

$F_R = 1,803\%,$

$R_M = 15,01\%,$

$\beta = 0,5.$

Individual input data are substituted into the CAPM model, Equation (2.82).

$r = 1,803+0,5(15,01-1,803)$

r = 8,407%

Required rate of return is calculated 8,407%.

Estimating of intrinsic value

Tab. 4.21 below shows the calculation of two stage dividend discount model of shares TalkTalk Telecom Group PLC.

Tab. 4.21 2 stage DDM

1st stage DDM	Dividend	$(1+g_1)$^n	Disc. div.	(1+r)^-n	Total
2014	11,46	1,102	12,627	0,922	11,648
2015	11,46	1,214	13,913	0,851	11,839
2016	11,46	1,338	15,329	0,785	12,033
Value of 1st stage DDM					**35,519**
2nd stage DDM	**Dividend**	**$1+g_2$**	**$r-g_2$**		
2016	15,330	1,025	0,059		**279,318**
Value of 1st and 2nd stage DDM					**314,840**

Source: author

An intrinsic value of share calculated as 2 stage dividend discount model is £314,84. Current market price (to the date 16.4. 2014) is £288,70. The intrinsic value is higher than the current market price, and an asset is undervalued.

4.3.2 Multiple models

Multiple models are very common method of fundamental analysis. The time value is respected here. P/E Ratio, P/BV Ratio and P/S Ratio is calculated within multiple models.

P/E Ratio

P/E Ratio is best known ratio of capital market. It measures stock price to the earnings per share. First, the E_1 is calculated as expected value of EPS in next year. Required rate of return is calculated in previous capitol 4.3.1. Growth rate of revenues is 3,65% according Tab.

4.18 and *p*, the dividend payout ratio is substituted into the Equation (2.78). Tab. 4.21 shows the intrinsic value of share calculated on base of P/E Ratio.

Tab. 4.22 Estimation of intrinsic value using model P/E Ratio

E_1	expected earning per share in next year	20,81
r	expected rate of return	0,08
g	growth rate of revenues	0,04
p	dividend payout ratio	0,81
IV	**intrinsic value**	**356,44**

Source: author

An intrinsic value of share equals £356,44. Current market price (to date 16.4. 2014) is £288,70. The intrinsic value is higher than the current market price, and an asset is undervalued.

P/BV Ratio

P/BV Ratio is the ratio of the stock price to book value per share. First step is to calculate V_0 using (2.54).

Tab. 4.23 Estimation of intrinsic value using model P/BV Ratio

BV1	book value in next year per share	44,49
ROE	return on equity	0,30
p	dividend payout ratio	0,81
r	expected rate of return	0,08
g	growth rate of revenues	0,04
IV	**intrinsic value**	**227,54**

Source: author

An intrinsic value of share equals £227,54. Current market price (to date 16.4. 2014) is £288,70. The intrinsic value is lower than the current market price, and an asset is overvalued.

P/S Ratio

P/S Ratio is another used multiple model that is calculated according Equitation (2.57). S_1 are expected sales in 2014 per share, mentioned in Tab. 4.24. Value £1731 is divided by number of assets in issued. M_1 is profit margin for next year based on ratio of expected net income to expected sales. The rest of the variables are the same.

Tab. 4.17 Estimation of intrinsic value using model P/S Ratio

S_1	expected sales in next year per share	181,26
M_1	expected profit margin in next year	0,08
p	dividend payout ratio	0,81
r	expected rate of return	0,08
g	growth rate of revenues	0,04
IV	**intrinsic value**	**236,76**

Source: author

An intrinsic value of share equals £236,76. Current market price (to date 16.4. 2014) is £288,70. The intrinsic value is lower than the current market price, and an asset is overvalued.

4.3.3 Balance models

Balance models methods are used as an additional method because the time value of money is not respected. The book value was chosen as a representative of balance models.

Book value model

Book value is the most common method of balance models. Book value is based on balance sheet data. An intrinsic value equals the book value in this case. Book value is calculated as difference of an assets and liabilities and than measured by number of issued shares.

Tab. 4.2518 Book value (£m)

Assets	3964,20
Liabilities	860,00
Book value	3104,20
Shares in issue	954,97
Intrinsic value	**325,06**

Source: author

Using book value method have been founded an intrinsic value of share £325,06. Current market price (to date 16.4. 2014) is £288,70. The intrinsic value is higher than the current market price, and an asset is undervalued.

4.3.4 Historical models

Historical models are the last group of method. These models are using historical averaged data. Average historical share price is obtained from monthly data of year 2011 – 2013. Time value is not respected here and so it may affect estimation of an intrinsic value of asset.

Model P/S

Using model P/S the intrinsic value of share is based on the ratio of the historical of average market share price to average historical sales per one share, like (2.62). $(P/S)_H$ is calculated as a historical weighted arithmetic average of *EPS* where the newest *EPS* has been assigned the highest weight. Subsequently, this ratio is multiply by expected sales in next year. The calculation is in Tab. 4.29.

Tab. 4.19 Historical model, P/S

P_A	average historical share price	185,83
$(P/S)_H$	average historical sales per share	17,28
S_1	expected sales in next year	1731,00
IV	intrinsic value	**186,15**

Source: author

An intrinsic value calculated using model P/S equals £186,15. Current market price (to date 16.4. 2014) is £288,70. The intrinsic value is lower than the current market price, and an asset is overvalued.

Model P/D

Model P/D is calculated as a ratio of historical share price to average historical dividend per share, according (2.46). Expected dividend for next year is 11,46p. An intrinsic value is estimated as (2.65).

Tab. 4.30 Historical model, P/D

P_A	average historical share price	185,83
$(P/D)_H$	average historical dividend per share	8,33
D_1	expected dividend in next year	11,46
IV	intrinsic value	**255,66**

Source: author

An intrinsic value calculated using model P/D equals £255,66. Current market price (to date 16.4. 2014) is £288,70. The intrinsic value is lower than the current market price, and an asset is overvalued.

Model P/BV

In P/BV model is measured average historical share price with an average book value per share. $(P/BV)_H$ is calculated as a weighted arithmetic average of book value in last 6 years. Expected BV for the next year is £420,85.

Tab. 4. 31. Historical model, P/BV

P_A	average historical share price	185,83
$(P/BV)_H$	average BV per share	48,68
BV_1	expected BV in next year	420,85
IV	intrinsic value	**110,25**

Source: author

An intrinsic value calculated using model P/BV equals £110,25. Current market price (to date 16.4. 2014) is £288,70. The intrinsic value is lower than the current market price, and an asset is overvalued.

4.3.5 Comparison of used methods

An intrinsic value of asset was estimated using number of methods; two stages discount dividend model, multiple models (P/E Ratio, P/BV Ratio, and P/F Ratio), balance models (book value and substitute value), and historical models (model P/S, model P/D, and model P/BV).

There were assigned the wages to individual models according the probability of the predictive ability, and the final estimation of intrinsic value was set as an individual method multiple individual coefficient. The highest coefficient 0,5 is intended for two-stage dividend discount model because this model is focused on the future value of the company and it respects the time value of the money. Coefficient 0,3 was divided between multiply models. It means model P/E Ratio, P/BV Ratio, and P/S Ratio got 0,1 each. The rest 0,2 was divided between balance and historical models, exactly coefficient 0,5 each method because using of this two groups of methods have only the additional character. Tab. 4.32 shows the resulting intrinsic value of share.

Tab. 4.3220 Comparasion of selected methods

Method	**Intrinsic value**	**Coefficient**	**Multiple**
2 stage DDM	314,84	0,5	157,42
Multiple models:			
P/E Ratio	356,44	0,1	35,644
P/BV Ratio	227,54	0,1	22,754
P/S Ratio	236,76	0,1	23,676
Balance models:			
Book value	50,58	0,05	2,53
Historical models:			
Model P/S	186,15	0,05	9,31
Model P/D	255,66	0,05	12,78
Model P/BV	110,25	0,05	5,51
Total INTRINSIC VALUE		**1**	**269,63**

Source: author

The resulting intrinsic value calculated as a ratio of individual methods within the company analysis is £269,63. The market price (to the date 16.4. 2014) is £288,70. Based on this information it can be found the estimated value as an overvalued.

4.3.6 Investment recommendation

Making an investment decision is dependent on the individual calculation of estimation an intrinsic value of a share as well as the other results and facts that have been identified in this thesis.

First, there was detected the influence of macroeconomics variables within the global analysis. The future development of British economics is optimistic for the share price in following years. At the present time low interest rates stimulates economic. Low level of inflation matches with the target and it is also expected in the future. GDP is expected to grow by the moderate pace. British pound should strengthen.

Industry analysis is focused on the telecom market that is growing and becoming very popular. There is a big number of competitors as well as a huge potential of new customers. TalkTalk is strongly positioned broadband and voice provider in UK. Ofcom is playing a big role in a regulations and company TalkTalk is cooperating with them in questions like the pricing is. Telecom industry is characterised as a less sensitive on the business cycle. TalkTalk services use especially households and small-size corporations.

Within financial analysis it have been founded TalkTalk is a stable company with a big potential in dividends. Rate of paid dividend is increasing year by year as well as dividend per share. The ratio of debt to equity is falling that is desirable. The value of equity multiplier is stable in time. According Altman Z-score the company is in a “safe” zone. Revenues are expected to growth in a future around 3,65%. SWOT analysis help to identify strengths, especially the market position in broadband televisions industry, than weaknesses, opportunities, especially the investments in new project and customers benefits. The threat of TalkTalk can be still growing competition.

After calculation an intrinsic value using individual models the wages were assigned to each model depending on probability of the predictive ability. The estimated intrinsic value was £269,63 and comparing the current market price £288,70 (to the date 16.4. 2014) seems lightly overvalued. The short – term investment recommendation based simply on the calculation would be to sell the shares of TalkTalk because it is overvalued. But there are many others circumstances pointing the opposite activity. First, the price of TalkTalk’s shares

is falling last month. And second, disadvantage of the fundamental analysis may be fact that the most of used models are on historical bases and the final result may be distorted. That is why it is important to make an analysis in a full context with global and industry analysis. Due to an expected growth in company's revenues, dividends, optimistic economics situation and well positioned company in a market, the investment recommendation is **hold.** For optimistic investors there is another option of buying TalkTalk's shares. The view of growing company, paying dividends with the dividend grow rate 10,18% annually may be very interesting investment.

5 Conclusion

This thesis was focused on the fundamental stock analysis of TalkTalk Telecom Group PLC. The aim was estimating the intrinsic value of asset using fundamental methods and subsequent investment recommendation.

Whole work was divided into the five main chapters. First chapter was devoted to introducing, and the fifth chapter for conclusion.

In the second chapter there were described the main characteristics and the background of fundamental analysis, than and the form of efficiency markets where the wrong pricing of assets may exist. There were also theoretically described individual parts of fundamental analysis; global, industry and company analysis.

In the third chapter was made and application of TalkTalk Telecom Group PLC on global and industry analysis. The macroeconomics influences as interest rates, GDP, inflation or exchange rates were examined into the relation with the stock market and its possible development within the global analysis. British economics was recorded as an optimistic for the following years. Inflation was in a low level, met with the target. GDP in UK is expected to rise in the future. Industry analysis was focused on the analyzing the industry in which the company is, the telecom industry. In this part were studied facts as an industry live cycle, business-cycle sensitivities, structure of market, and governmental influences, which may cause influence on company's sales and profits. Telecom industry was founded in a growth stage with a high potential of rising revenues.

The fourth chapter was the main part of whole thesis. It was devoted to characteristics of TalkTalk Telecom Group PLC and its corporate environment, development to the relevant market, dividend politics and than to financial analysis where the company's health was assessed using profitability, activity, liquidity, solvency, and the capital markets ratios. The intrinsic value of share was estimated using two stage dividend discount model, than multiple models (P/E Ratio, P/BV Ratio and P/S Ratio), balance models (book value), and historical models (model P/S, model P/D, and model P/BV); taking the balance and historical models as additional ones. Estimation of the intrinsic value of asset was based on the assignment the wages to individual models according the probability of the predictive ability. Two stage dividend discount model got the highest coefficient. The final intrinsic value of share £269,63 was subsequently compared with the current market price of share £288,70. The current

market price of TalkTalk's share was lightly higher than the calculated intrinsic value and the shares were a bit overvalued. But based on the results of individual parts of fundamental analysis, especially the huge potential in grow of sales, optimistic economics situation and well positioned company in the broadband market and rising trend of dividend was made an investment recommendation to hold the assets. Due to these facts there may be another option. The shares of TalkTalk Telecom Group PLC seem to be interesting investment for the optimistic investors.

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List of abbreviations

£	pound sterling
ΔWC	change in working capital
A	assets
BBA	British Bankers Association
bn.	billion
BV	book value
CE	capital expenditure
CF	cash flow
CPI	customer price index
CPS	Carrier Pre-Select
CV	continuing value
DDM	dividend discount model
DY	dividend yield
E	equity
e.g.	for example
EBIT	earnings before interests and taxes
EPS	earnings per share
etc.	and the rest
EU	European Union
EUR	euro
FCF	free cash flow
FCFE	free cash flow to equity
FCFF	free cash flow to entity
g	growth rate
GBP	pound sterling

GDP	gross domestic product
i	interest rate
IC	invested capital
IE	interest expenses
IRC	interest coverage ratio
IV	intrinsic value
LIBOR	London Interbank Offered Rates
LLP	limited liability partnership
M	profit margin
mil.	million
mld.	milliard
MPC	Monetary Policy Committee
N	number of years
NACE	Classification of Economic Activities
NI	net income
NPM	net profit margin
NWC	net working capital
OECD	Organisation for Economic Cooperation and Development
OPM	operating profit margin
OSN	United Nations Organisation
p	dividend payout ratio
P/E	Price-Earning ratio
PD	payments of debts
PLC	public limited company
r	required rate of return
R_E	costs of equity
R_F	risk free rate

R_M	market rate of return
ROA	return on assets
ROC	return on capital
ROE	return on equity
RT	receivables turnover
S	sales
t	time
Tab.	table
TAT	total assets turnover
TPI	turnover period of inventories
TPL	turnover period of short – term liabilities
TPR	turnover period of receivables
TV	television
UK	United Kingdom
VAT	value added tax
WACC	weighted average capital costs
Y	year
β	beta factor

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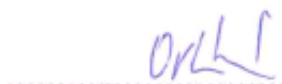

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Bc. Monika Orlíková

List of annexes

Annex A Balance sheet 2013, 2012

Group balance sheet

As at 31 March

	Note	2013 £m	2012 £m
Non-current assets			
Goodwill	11	479	480
Other intangible assets	11	154	202
Property, plant and equipment	12	295	292
Non-current asset investments	13	–	1
Investment in joint venture	14	9	7
Deferred tax assets	7	109	120
		1,046	1,102
Current assets			
Cash and cash equivalents	18	7	2
Inventories	15	23	3
Trade and other receivables	16	226	184
Loans to related parties	16	–	2
		256	191
Total assets		1,302	1,293
Current liabilities			
Trade and other payables	17	(431)	(379)
Loans and other borrowings	18	(25)	(26)
Corporation tax liabilities		(16)	(16)
Provisions	20	(5)	(8)
		(477)	(429)
Non-current liabilities			
Loans and other borrowings	18	(375)	(410)
Provisions	20	(8)	(10)
		(383)	(420)
Total liabilities		(860)	(849)
Net assets		442	444
Equity			
Share capital	21, 22	1	1
Share premium	22	618	586
Translation and hedging reserve	22	(64)	(55)
Demerger reserve	22	(513)	(513)
Retained earnings and other reserves	22	400	435
Total equity		442	444

The accompanying notes are an integral part of this Group balance sheet.

These financial statements were approved by the Board on 15 May 2013. They were signed on its behalf by:

D Harding
Chief Executive Officer

A Stirling
Chief Financial Officer

Annex B Income statement 2013, 2012

Group income statement

For the year ended 31 March

	Notes	2013 Before amortisation of acquisition intangibles and exceptional items £m	2013 Amortisation of acquisition intangibles and exceptional items*** £m	2013 After amortisation of acquisition intangibles and exceptional items £m	2012 Before amortisation of acquisition intangibles and exceptional items £m	2012 Amortisation of acquisition intangibles and exceptional items*** £m	2012 After amortisation of acquisition intangibles and exceptional items £m
Revenue	2	1,679	–	1,679	1,587	–	1,587
Cost of sales		(751)	–	(751)	(803)	–	(803)
Gross profit		919	–	919	884	–	884
Operating expenses excluding amortisation and depreciation*		(567)	9	(558)	(567)	(27)	(594)
Underlying EBITDA**		352	9	361	317	(27)	290
Sale of freehold property		–	–	–	9	–	9
Investment in TV		(62)	–	(62)	–	–	–
Headline EBITDA		290	9	299	326	(27)	299
Depreciation	3, 12	(76)	–	(76)	(65)	–	(65)
Amortisation	3, 11	(26)	(52)	(78)	(27)	(61)	(88)
Share of results of joint venture	14	(4)	–	(4)	(1)	–	(1)
Operating profit	3	184	(43)	141	233	(88)	145
Finance costs	6	(19)	–	(19)	(18)	–	(18)
Profit before taxation		165	(43)	122	215	(88)	127
Taxation	7	(33)	11	(22)	(56)	67	11
Profit for the year		132	(32)	100	159	(21)	138
Attributable to the equity holders of the Parent Company		132	(32)	100	159	(21)	138
Earnings per share							
Underlying							
Basic (pence)	10	20.6			17.2		
Diluted (pence)	10	19.4			16.4		
Headline/Statutory							
Basic (pence)	10	14.9		11.3	18.0		15.6
Diluted (pence)	10	14.0		10.6	17.2		14.9

*Operating expenses excluding amortisation and depreciation also include other exceptional income (note 5).
**Underlying EBITDA as defined as Headline EBITDA excluding any costs relating to the investment in TV (2012: excluding the profit on sale of a freehold property).
***A reconciliation of Headline information to Statutory information is provided in note 31 of the financial statements.

The accompanying notes are an integral part of this Group income statement. All amounts relate to continuing operations.

Annex C Balance sheet 2011, 2010

Consolidated balance sheet

For the year ended 31 March 2011

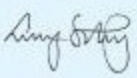
	Notes	2011 £m	2010 *As restated £m
Non-current assets			
Goodwill	11	471	470
Other intangible assets	11	255	316
Property, plant and equipment	12	290	262
Non-current asset investments	13	1	1
Investment in joint venture	14	4	–
Deferred tax asset	7	116	155
		1,137	1,204
Current assets			
Cash and cash equivalents	18	1	1
Inventories	15	3	2
Trade and other receivables	16	155	180
Loans to related parties	16	2	3
		161	186
Total assets		1,298	1,390
Current liabilities			
Trade and other payables	17	(376)	(400)
Corporation tax liabilities		(22)	(42)
Loans and other borrowings	18	(44)	(19)
Provisions	20	(32)	(29)
		(474)	(490)
Non-current liabilities			
Loans and other borrowings	18	(395)	(490)
Provisions	20	(14)	(18)
		(409)	(508)
Total liabilities		(883)	(998)
Net assets		415	392
Equity			
Share capital	21, 22	1	1
Share premium	22	586	586
Translation reserve	22	(65)	(60)
Demerger reserve	22	(513)	(513)
Retained earnings and other reserves	22	406	378
Funds attributable to equity shareholders		415	392

* The prior year balance sheet has been restated to reflect the finalisation of the Tesco UK and UK Telco acquisition purchase prices (note 29).

The accompanying notes are an integral part of this Consolidated balance sheet.

These financial statements were approved by the Board on 18 May 2011. They were signed on its behalf by:

O Harding



A Stirling

Annex D Finance statement 2011, 2010

Consolidated income statement

For the year ended 31 March 2011

	Notes	Before amortisation of acquisition intangibles and exceptional items 2011 £m	Amortisation of acquisition intangibles and exceptional items* 2011 £m	After amortisation of acquisition intangibles and exceptional items 2011 £m	Before amortisation of acquisition intangibles and exceptional items 2010 £m	Amortisation of acquisition intangibles and exceptional items* 2010 £m	After amortisation of acquisition intangibles and exceptional items 2010 £m
Revenue	2	1,765	–	1,765	1,686	–	1,686
Cost of sales		(877)	–	(877)	(838)	–	(838)
Gross profit		888	–	888	848	–	848
Operating expenses excluding amortisation and depreciation	3	(612)	(49)	(660)	(627)	(47)	(674)
EBITDA		276	(49)	228	221	(47)	174
Depreciation	3, 12	(57)	(3)	(60)	(46)	(1)	(47)
Amortisation	3, 11	(26)	(66)	(92)	(24)	(87)	(111)
Share of results of joint venture	14	(1)	–	(1)	–	–	–
Operating profit		192	(117)	75	151	(135)	16
Finance costs	6	(18)	–	(18)	(10)	(1)	(11)
Investment revenue	6	–	–	–	6	–	6
Profit before taxation		174	(117)	57	147	(136)	11
Taxation	7	(52)	30	(22)	(41)	27	(14)
Profit (loss) for the year		122	(87)	35	106	(109)	(3)
Attributable to the equity holders of the Parent Company		122	(87)	35	106	(109)	(3)
Earnings per share							
Basic (pence)	10	13.5		3.9	11.8		(0.3)
Diluted (pence)	10	12.8		3.7	11.2		(0.3)

* A reconciliation of Headline information to Statutory information is provided in note 9 to the financial statements.

The accompanying notes are an integral part of this Consolidated income statement. All amounts relate to continuing operations.

Annex D Calculation R_M and F_R

Date	FTSE 100	Yield
Oct 2009	5140	-
Nov 2009	5410	5,25%
Dec 2009	5327	3,64%
Jan 2010	5500	7,00%
Feb 2010	5247	2,08%
Mar 2010	5406	5,18%
Apr 2010	5780	12,45%
May 2010	5342	3,93%
Jun 2010	5163	0,45%
Jul 2010	4806	-6,50%
Aug 2010	5366	4,40%
Sep 2010	5495	6,91%
Oct 2010	5556	8,09%
Nov 2010	5695	10,80%
Dec 2010	5657	10,06%
Jan 2011	6014	17,00%
Feb 2011	5958	15,91%
Mar 2011	5936	15,49%
Apr 2011	5909	14,96%
May 2011	6083	18,35%
Jun 2011	5929	15,35%
Jul 2011	5990	16,54%
Aug 2011	5795	12,74%
Sep 2011	5103	-0,72%
Oct 2011	5076	-1,25%
Nov 2011	5546	7,90%
Dec 2011	5489	6,79%
continued		

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Jan 2012	5700	10,89%
Feb 2012	5901	14,81%
Mar 2012	5911	15,00%
Apr 2012	5875	14,30%
May 2012	5758	12,02%
Jun 2012	5260	2,33%
Jul 2012	5641	9,75%
Aug 2012	5713	11,15%
Sep 2012	5758	12,02%
Oct 2012	5820	13,23%
Nov 2012	5862	14,05%
Dec 2012	5871	14,22%
Jan 2013	6027	17,26%
Feb 2013	6247	21,54%
Mar 2013	6346	23,46%
Apr 2013	6491	26,28%
May 2013	6461	25,70%
Jun 2013	6525	26,95%
Jul 2013	6308	22,72%
Aug 2013	6682	30,00%
Sep 2013	6506	26,58%
Oct 2013	6460	25,68%
Nov 2013	6731	30,95%
Dec 2013	6595	28,31%
Jan 2014	6718	30,70%
Feb 2014	6510	26,65%
Mar 2014	6810	32,49%
Apr 2014	6659	29,55%
		15,01%

10Y State obligation	Monthly
Jan 2013	1,327
Feb 2013	1,348
Apr 2013	1,318
Mar 2013	1,154
May 1013	1,369
Jun 2013	1,737
Jul 2013	2,032
Aug 2013	2,197
Sep 2013	2,308
Nov 2013	2,187
Oct 2013	2,379
Dec 2013	2,286
	1,803

Annex E Linear regression, beta coefficient

Period	Market value of TalkTalk	Profitability of share	Value of FTSE 100	Profitability of FTSE 100
Jan 2011	161,6	-	6014	-
Feb 2011	160,6	-0,62%	5958	-0,93%
Mar 2011	150	-6,60%	5936	-0,37%
Apr 2011	139,2	-7,20%	5909	-0,45%
May 2011	136,6	-1,87%	6083	2,94%
Jun 2011	146	6,88%	5929	-2,53%
Jul 2011	145,1	-0,62%	5990	1,03%
Aug 2011	144,7	-0,28%	5795	-3,26%
Sep 2011	128	-11,54%	5103	-11,94%
Oct 2011	126,2	-1,41%	5076	-0,53%
Nov 2011	125,8	-0,32%	5546	9,26%
Dec 2011	132,4	5,25%	5489	-1,03%
Jan 2012	136,6	3,17%	5700	3,84%
Feb 2012	124	-9,22%	5901	3,53%
Mar 2012	145,1	17,02%	5911	0,17%
Apr 2012	139,6	-3,79%	5875	-0,61%
May 2012	130	-6,88%	5758	-1,99%
continues				

continues				
Jun 2012	154,8	19,08%	5260	-8,65%
Jul 2012	192,4	24,29%	5641	7,24%
Aug 2012	174,8	-9,15%	5713	1,28%
Sep 2012	194,7	11,38%	5758	0,79%
Oct 2012	184,8	-5,08%	5820	1,08%
Nov 2012	191,7	3,73%	5862	0,72%
Dec 2012	220	14,76%	5871	0,15%
Jan 2013	236,2	7,36%	6027	2,66%
Feb 2013	253,4	7,28%	6247	3,65%
Mar 2013	251,8	-0,63%	6346	1,58%
Apr 2013	276	9,61%	6491	2,28%
May 2013	255,1	-7,57%	6461	-0,46%
Jun 2013	227,2	-10,94%	6525	0,99%
Jul 2013	229,7	1,10%	6308	-3,33%
Aug 2013	247,5	7,75%	6682	5,93%
Sep 2013	248	0,20%	6506	-2,63%
Oct 2013	248,1	0,04%	6460	-0,71%
Nov 2013	266,8	7,54%	6731	4,20%
Dec 2013	266,4	-0,15%	6595	-2,02%
	185,86